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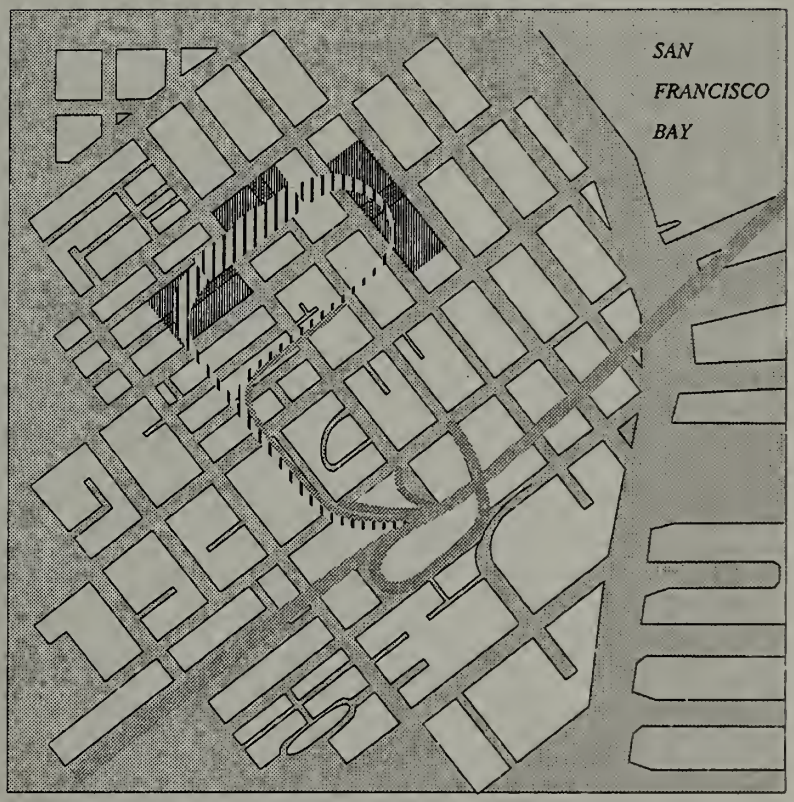

TRANSIT TERMINAL STUDY

The Planning Department
City and County of San Francisco

November 30, 1993

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TRANSIT TERMINAL STUDY

NOVEMBER 30, 1993

Prepared by the:

City **Planning Department**
City and County of San Francisco

With:

Korve Engineering
Crosby Hemlich Architects
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I. EXECUTIVE SUMMARY

Background

In early September 1993, in anticipation of the release of the Transit Needs Study by the Metropolitan Transportation Commission (MTC) and California Department of Transportation (Caltrans), the Mayor requested the Department of City Planning to undertake a quick study to assist in determining the siting and configuration of a transit terminal best able to meet the transit needs of the City and region into the future. This effort also responds to the request from Caltrans, which owns and operates the existing Transbay Transit Terminal, to the City to mutually pursue joint development opportunities.

The purpose of this report is to examine alternatives for providing an upgraded downtown transit terminal to meet existing and projected future transit service needs in conjunction with potential land use development opportunities. The report examines possibilities to develop a regional transit terminal which will optimize satisfaction of existing and future transit service needs. This report is intended to assist in the development of a City position on the following two issues:

1. How can we best accommodate the transit needs of the City and the region over the next twenty years?

2. Once we meet the transit needs of the City and the region, what land is available for other uses?

Transit Needs and the Existing Transbay Transit Terminal

A staff working paper of the Transit Needs Study prepared by the Metropolitan Transportation Commission and Caltrans has identified the potential for substantial growth in transit services which use the existing Transbay Transit Terminal. The existing Terminal as presently configured does not provide the number of bus berths nor midday bus storage space potentially needed in the future. It would be physically possible to modify the existing Terminal to meet future bus berthing needs. It may also be possible to accommodate one or more future rail service options in a separate, adjacent underground rail station or by the addition of a second bus deck. Modification of the existing Terminal could, however, be a complex and expensive undertaking with limited opportunities for enhancing the development potential of this site and the surrounding area. Thus, while adaptation of the existing Terminal may be possible, development of a new terminal could create better opportunities to meet future transit needs.

Alternatives to the Existing Terminal

The principal focus of this report is on two alternatives which develops a new transit terminal to satisfy future transit needs. A collateral benefit of these alternatives is the creation of opportunities for other land use development. A basic premise of this report is that use of the existing Transbay Transit Terminal site for other land uses would require development of a suitable replacement transit terminal. Another premise

has been that land which is currently in public ownership would primarily be used to site a replacement facility.

Alternative A utilizes the existing Transbay Transit Terminal site and adjacent properties to build a new underground and surface level transit terminal with opportunities for joint development of other land uses above the ground level (see Figure 1). Alternative B creates the opportunity to use the Transbay Transit Terminal site and adjacent properties for other land uses and proposes a new replacement transit terminal in the right-of-way formerly occupied by the Main and Beale freeway ramps for the Terminal Separator Structure north and south of Howard Street. Both of the alternatives studied would satisfy the principal requirements for a new transit terminal and create opportunities for development of other land uses in this central downtown location.

Each alternative for a new transit terminal could provide the following:

- the expanded number of bus berths projected to be needed within twenty years in the Transit Needs Study prepared by the Metropolitan Transportation Commission and Caltrans;
- off-street bus berths for some bus operators which currently load on-street;
- grade-separated bus ramp access to and from the Bay Bridge with access to the local street network as well;
- potential to reduce existing conflicts between autos and transit operations, particularly for the alternative with a new terminal at the Main and Beale site;
- easy access to existing transit services on Market and Mission Streets;
- space for a potential underground rail station to accommodate a downtown extension of Caltrain service or high speed intercity rail;
- space which may meet existing levels of on-site midday bus storage with potential to satisfy some anticipated growth.

Implementation Schedule: Environmental Process and Construction

Each alternative for building a new transit terminal would involve an extensive environmental review process. The environmental review process for The Mid-Embarcadero and Terminal Separator Structure would need to account for potential new land uses. An alternative for modifying the existing Transbay Transit Terminal to meet future bus service needs may require a less complicated and shorter environmental review process.

Preliminary estimates for a modified Transbay Transit Terminal (Alternative X) are that the environmental review process would require 12-15 months, if a Negative Declaration were appropriate and there was timely review by Caltrans. Preliminary estimates for a new transit terminal at the existing Transbay Terminal site (Alternative A) or at the Main/Beale site (Alternative B) have an environmental review process estimated to take from 29 to 40 months, based on preparation of an EIR and with the possibility of a combined EIS/EIR also accounted for and assuming timely review by Caltrans and, in the case of an EIS/EIR, by relevant federal agencies as well. Financing a modified or new transit terminal from local, regional, or federal funds would be difficult because these sources are generally already committed to other projects. Joint development may present potential for private financing for developing a suitable transit terminal in a reasonable time frame, perhaps in combination with limited use of public sources. Joint development would be most feasible with development of a new transit terminal.

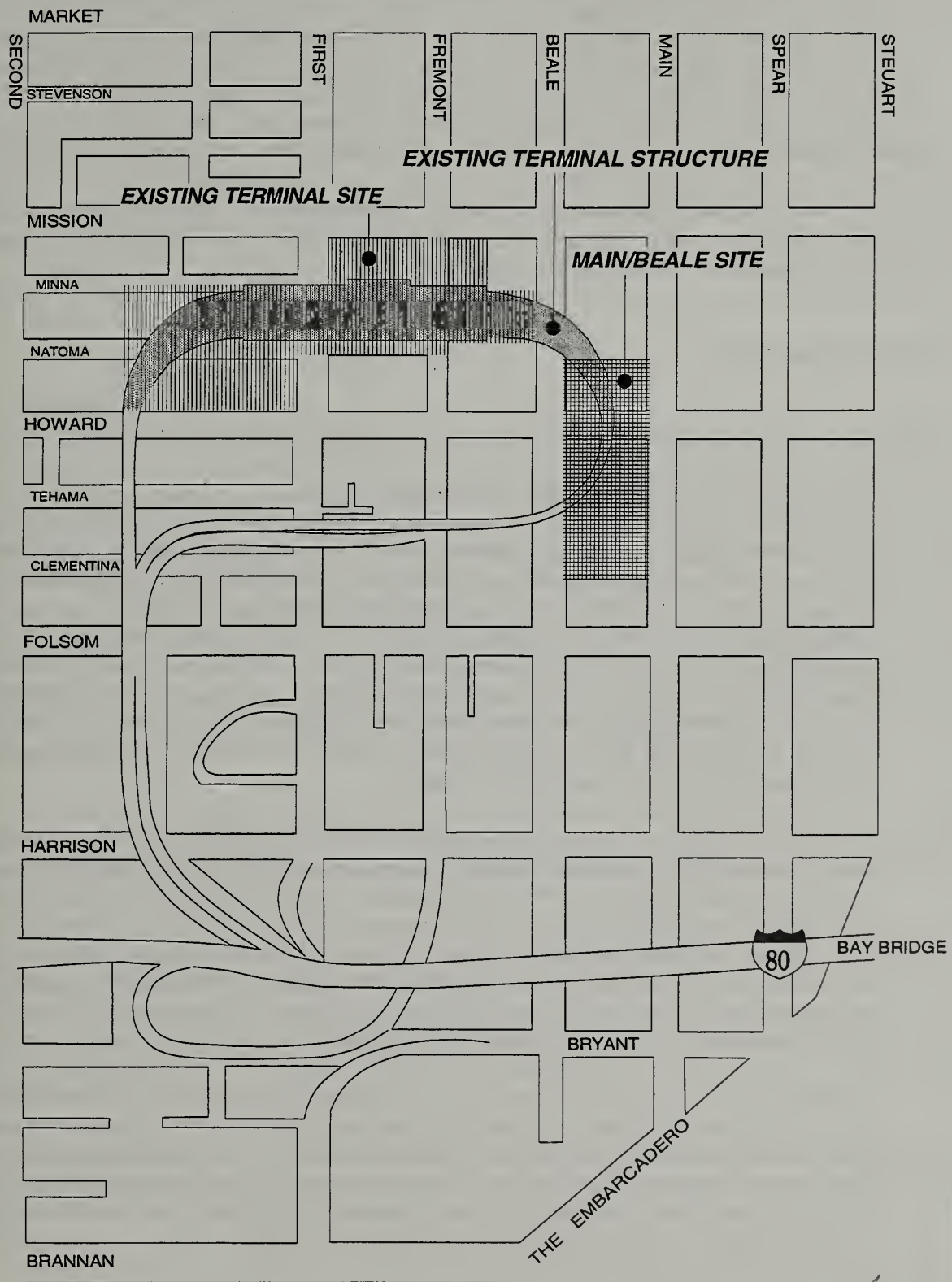

Figure 1
ALTERNATIVE SITE LOCATIONS

Some land acquisition would be needed for either Alternative A or B. Land assembly, financing, development of construction drawings, and contract bidding would all need to occur in a timely fashion in order to minimize the time between completion of the environmental review process and initiation of construction. If pre-construction tasks were staged to overlap with the later stages of the environmental review process, modifications to adapt the existing Transbay Transit Terminal could be completed by the second half of 1997 if a Negative Declaration were appropriate and a new transit terminal could be completed between early 1999 and early 2000 if an EIR and/or EIS were required.

More detailed investigation and political consensus building needs to occur immediately after initial screening of the alternatives. A financial plan and strategy will need to be developed for each component of the selected program to allow timely completion.

Staff Recommendations

Preliminary evaluation indicates the following ranking of alternatives for meeting future transit needs:

- Alternative B, which sites a new transit terminal at Main/Beale and creates opportunities for development of new land uses at the existing Transbay Transit Terminal site, has excellent potential but possible obstacles to implementation. Alternative B provides flexibility in the design of a new transit terminal, would be closer to the Embarcadero Station for BART and MUNI Metro access, would reduce conflicts between autos and transit, may have some joint development potential, and would be cost effective to build. It may be feasible to stage Alternative B construction so that the the existing Terminal can continue to be used until a new terminal is built. Alternative B establishes a new transit terminal in the right-of-way of the former Terminal Separator Structure (TSS), and timely action would be needed to narrow TSS alternatives to exclude the Main and Beale ramps to make Alternative B feasible. The estimated cost to implement Alternative B would be $101 million.

- Alternative A, which sites a new transit terminal at the existing Transbay Transit Terminal with other potential land uses stacked above, has excellent potential but possible obstacles to implementation. Opportunities for joint development on-site would be maximized. Alternative A would accommodate transit activities in the same location with a new terminal and would be cost effective to build, but would require relocation of transit activities during construction. Implementation of Alternative A may become more complicated because development of a new transit terminal could become intertwined with development of other land uses stacked above. The estimated cost to implement Alternative A would be $79 million.

- Alternative X, which modifies the existing Terminal, could meet most future transit service needs but would require relocation of Terminal activities during the construction period and would cost about the same or more than a new terminal. There would be limited potential for joint development, for private financing, and for enhancement of the surrounding area. Building a new terminal offers greater flexibility and would be more cost effective than would modifying the existing Terminal. The estimated cost to implement Alternative X would be $93 million.

II. EXISTING TRANSBAY TRANSIT TERMINAL OPERATIONS

Background

The Transbay Transit Terminal (Terminal) and its adjoining ramp system were completed in 1939 as part of the construction of the Bay Bridge. It was designed to accommodate East Bay rail service provided by Key System streetcars and heavy rail service provided by Southern Pacific's "Big Red Trains" and Sacramento Northern trains. Heavy rail service into the Terminal was short-lived, and Key System service ended in the late 1950's. Bus service provided by AC Transit replaced rail service, and the Terminal was revamped to serve as a bus terminal. AC Transit and Greyhound now have the most extensive use of the Terminal building.

Existing conditions

Currently there are 12 commute, non-commute and tour bus operators using the Terminal building. There are six public transit operators using the Terminal area. The other six bus carriers are either private bus tour operators or other types of bus carriers. According to the staff working paper of the Transit Needs Study, in 1992 more than 31,000 passengers used the Terminal and the streets around the Terminal daily. Seven of the twelve bus operators use the interior bus deck located at the upper level bus platform of the building for loading and unloading purposes. Passengers wait for buses next to the bus bays on the third level. The two outside areas to the north of the Terminal, one at the mezzanine level known as the "hump" and one at the street level known as the "crescent", are on Caltrans property and are heavily used by MUNI and SamTrans, respectively. Natoma Street, under the City's jurisdiction, is to the south of the Terminal building and is used by some tour buses and, until recently, Amtrak. The streets around the Terminal are used by various bus carriers who serve the Bay Area (see Figure 2).

Table 1 shows the 1992 weekday transit ridership at and around the Transbay Transit Terminal. AC Transit with 653 arrivals and departures on weekdays is the largest transit carrier using the Terminal building. MUNI with 1,003 buses on weekdays has the largest number of bus arrivals and departures using the "hump" area outside the Terminal building.

The Terminal building structure, exclusive of the bus access ramps, occupies portions of the three city blocks between Second, Mission, Beale and Howard Streets. The main building known as the Transbay Transit Terminal is located on the central block between First, Mission, Fremont and Natoma Streets. The two buildings located to the east and west of the main building connect to the main building from the second level above. These two buildings are mainly used for parking at the lower level. The bus deck occupies the entire third level of all three buildings.

The main Terminal building has three levels accessible to the public. The interior bus deck occupies the entire third level of the building. The mezzanine level of the Terminal is used for passenger waiting area, ticketing offices, restaurants, retail and other uses.

A large passenger waiting area is located at the ground level and space is shared with restaurants, ticketing offices and some other uses. Natoma Street is at the same level as this area and passengers leaving from Natoma Street or passengers arriving on Natoma Street use this area for waiting purposes.

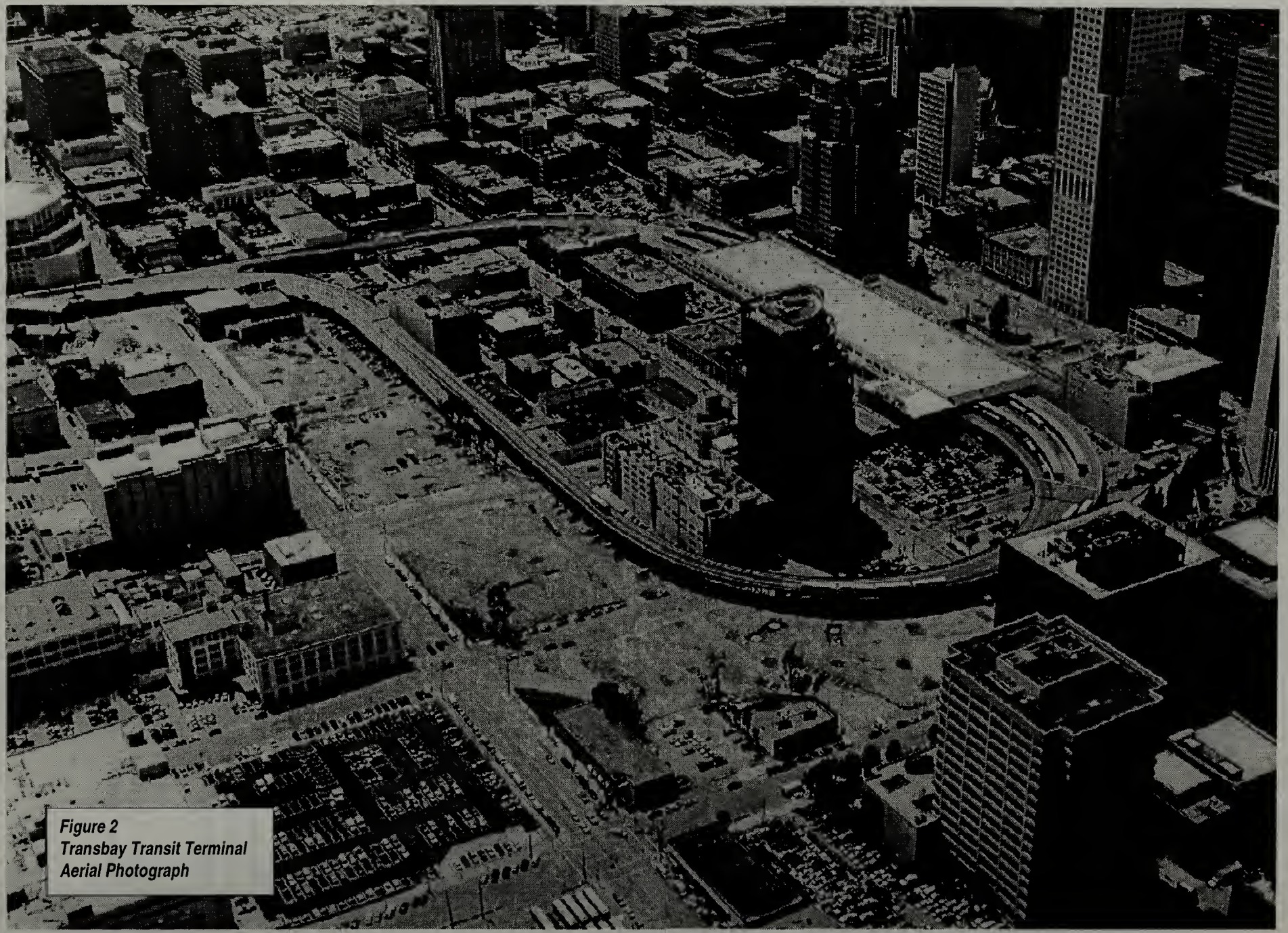

Figure 2
Transbay Transit Terminal
Aerial Photograph

TABLE 1
1992 WEEKDAY TRANSIT RIDERSHIP AT AND AROUND THE TRANSBAY TERMINAL

TRANSIT CARRIER	# OF BUS STOPS	# OF BUS LINES	# OF ARRIVALS & DEPARTURES	# OF DAILY PASSENGERS*
INTERIOR BUS DECK				
AC Transit	23	33	653	13,000
Golden Gate Transit	4	6	275	600
Greyhound	13	1	86	2,500
Caltrans Bike Shuttle	Shares w/ AC (1)	1	4	50
Amador/Mike Lee & Betty's	Shares w/ AC (1)	1	12	90
Gray Line (Tour)	Shares w/ AC (12)	6	45	2,500
Gray Line (Sac Commute)	1	1	4	90
SUBTOTAL	41	86	1,082	18,830
EXTERIOR HUMP AND CRESCENT				
Sam Trans	3	6	269	1,850
SF MUNI	7	4	1,003	5,850
SUBTOTAL	6	10	1,272	7,700
On Mission, First Fremont, Howard & Natoma Streets **				
Amtrak (prior to June 1993)	3	1	24	1,000
Green Tortoise ***	1	1	2	70
Golden Gate	7	20	364	3,380
Silverstar	1	1	4	20
Falcon	1	1	2	10
SUBTOTAL	13	24	396	14,480
Grand Total	61	83	2,750	31,010

Source: Staff Working Paper of the Transit Needs Study, MTC and Caltrans, October 1993

* Boardings and Alightings

** Buses that terminate, originate and lay over on the block immediately surrounding the Transbay Terminal, plus First and Fremont between Mission and Market

*** Fewer buses November through May

Table 2 identifies specific uses and the square footage of all of the three Terminal buildings and the surrounding areas with bus related uses. The largest single use in the three buildings is parking which occupies 156,000 square feet. Figure 3 shows the site plan for the existing Terminal.

A set of exclusive ramps connect the Terminal building to the Bay Bridge. These ramps are used primarily by AC Transit and Greyhound buses for access. An on/off exclusive transit and emergency service vehicle ramp provides access from the Terminal building to surface streets through the Bay Bridge ramp, at Second and Harrison streets. This ramp is mostly used by Greyhound and Golden Gate Transit buses.

The ramps leading to the Terminal are also used for bus storage purposes. Table 3 identifies storage use of the Terminal building by transit carriers in 1992. Currently AC Transit stores a maximum of 80 buses in the terminal and Gray Line stores 12 buses on a daily basis.

The existing minimum radius on the bus ramps is 250 feet and 165 feet for the Second Street ramp. The maximum grade on the dedicated bus ramp is 4 percent.

Peak hour operation information for the largest transit carriers using the terminal building is provided in Table 4. This determines maximum demand requirements.

Table 4 indicates that greatest bus volume in the peak period for AC Transit, the largest user of the Terminal building, is 103 buses in the morning peak hour and 104 buses in the afternoon peak hour. Overall there are about 660 bus arrivals and departures during the morning peak period (6:30 a.m. to 9:00 a.m.) in the Transbay Terminal area, including the private bus carriers. During the afternoon peak period (4:30 to 6:30 p.m.) there are about 740 bus arrivals and departures in the Terminal area, including the private bus carriers.

TABLE 2
1992-93 SPACE UTILIZATION AT THE TRANSBAY TRANSIT TERMINAL AREA, (SQUARE FEET)

TYPE OF SPACE	TRANSIT CARRIER												
	AC Transit	Golden Gate Transit	S.F. Muni	SamTrans	Greyhound	Gray Line Tour	Amtrak	Amador**	Falcon	Green Tortoise	Silver Star	Common Space	GRAND TOTAL
Bus Parking & Circulation Area Near Platforms (Caltrans Property)	55,150	9,200	14,000	3,500	7,[illegible]8	Shares w/AC		Shares w/AC					104,350
Passenger Loading/Unloading (Caltrans Property)	33,400	4,500	2,500	1,400	11,000	Shares w/AC	1,500	Shares w/AC	400	400	500		55,600
Bus Parking Area on City Streets		3,600		600			1,500		400	400	500		7,000
Passenger Loading/Unloading on City Sidewalks		3,600		600									4,200
Bus Storage (Terminal Property)	47,000												47,000
Private Ticketing Office/ Storage/Toilets/Misc.	1,830				7,845	750	1,180*	1,210			1,030		13,845
Vacant Office Space												9,000	3,000
Package Express/Baggage Handling					12,240		480*						12,720
Passenger Waiting Area					1,300		4[illegible]0*					24,300	26,440
Common Restrooms												3,000	3,000
Retail Services												7,830	7,830
Corridors, Ramps												72,000	47,000
Garage Parking												156,000	156,000
Utility Space												156,000	47,000
GRAND TOTAL	137,380	20,900	16,500	6,100	54,885	750	5,500	1,210	800	800	2,030	302,130	548,985

Source. Staff Working Paper of the Transit Needs Study, MTC and Caltrans, October of 1993

Notes.

1 Square footage shown on third and fourth rows is City property.

2 Gray Line Sacramento and Caltrans Bike Shuttle share bus parking/passing space and passenger loading/unloading space with AC Transit

3. Surface parking under ramps (including vanpool parking) not measured.

* *Projected for late 1993*

** *Amador incorporates Mike Lee Tours and Betty's Tours*

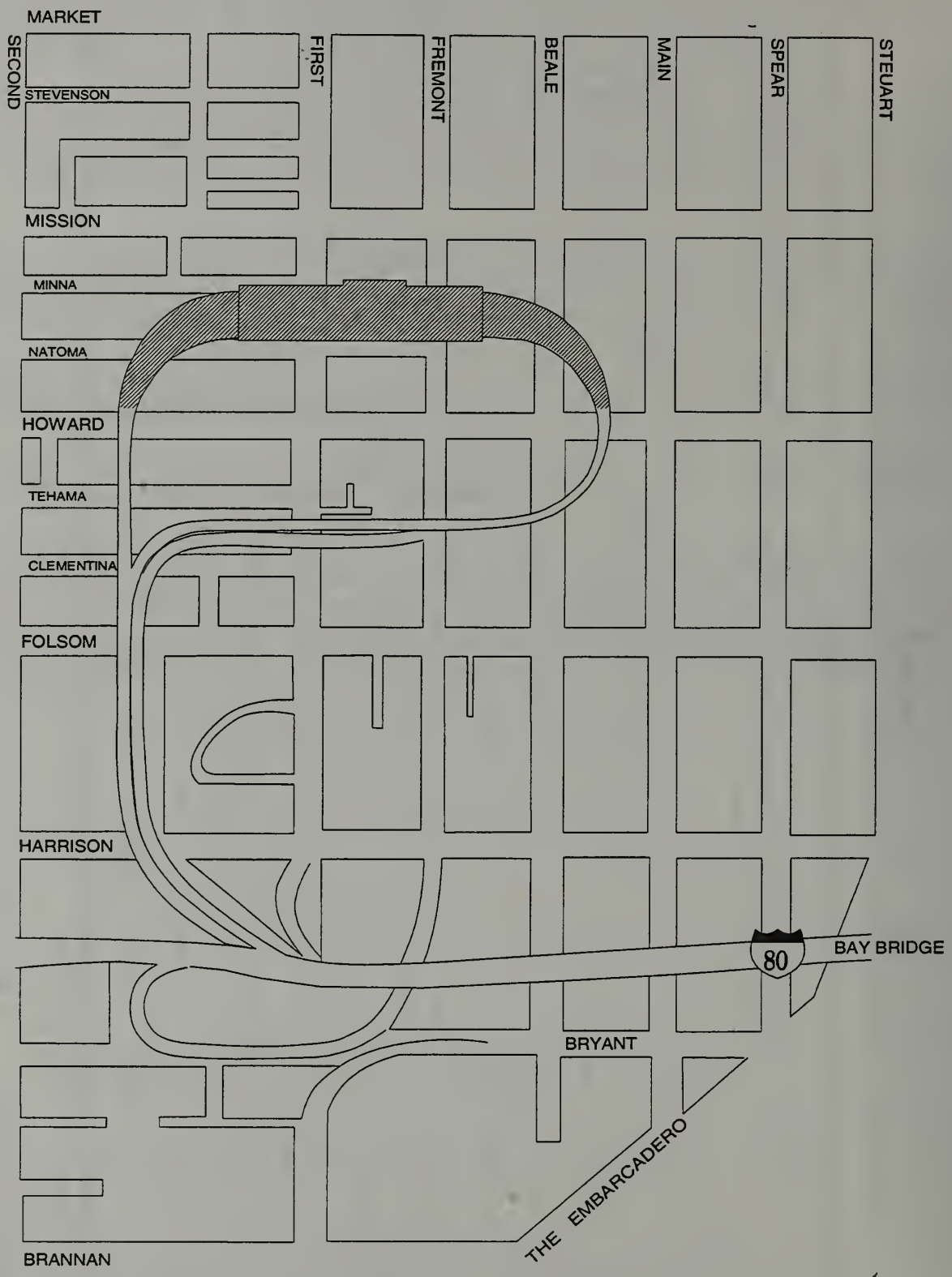

Figure 3
EXISTING TERMINAL BUILDING

TABLE 3

CURRENT MIDDAY BUS STORAGE USE OF THE MAJOR TRANSIT CARRIERS

TRANSIT CARRIER	NUMBER OF BUSES	LOCATION
Terminal Building		
AC Transit	40 - (80)	Bus Deck
Gray Line	12	Bus Deck
Outside Terminal Building		
Golden Gate Transit	128	160 Harrison
Samtrans	40	8th/Harrison

Source: Staff Working Paper of the Transit Needs Study, MTC and Caltrans, October 1993 and San Francisco Multi Operator Downtown Bus Storage Facility Feasibility Study, December 1992

00 During School Days
(00) During School Holidays

TABLE 4
PEAK PERIOD SERVICE LEVELS AND RIDERSHIP
(TRANSIT OPERATORS ONLY)*

Number of Bus Arrivals and Departures, AM Peak Period

	AC Transit	MUNI	Samtrans	Golden	TOTAL
6:30-6:59	29	12	12	22	81
7:00-7:29	54	27	12	32	125
7:30-7:59	53	37	13	46	149
8:00-8:29	44	41	7	50	142
8:30-8:59	21	38	7	43	109
TOTAL	201	161	51	193	606

Number of Bus Arrivals and Departures, PM Peak Period

4:00-4:29	28	45	14	32	119
4:30-4:59	50	44	10	39	143
5:00-5:29	54	45	9	53	161
5:30-5:59	47	32	7	35	121
6:00-6:29	38	26	9	23	96
TOTAL	217	192	49	182	640

Number of Passenger Boardings and Alightings, AM Peak Period

6:30-6:59	782	118	94	89	1083
7:00-7:29	1305	190	126	99	1720
7:30-7:59	1156	203	101	141	1601
8:00-8:29	1115	170	85	134	1504
8:30	501	172	65	82	820
TOTAL	4859	853	471	545	6728

Number of Passenger Boardings and Alightings, PM Peak Period

4:00-4:29	303	164	121	484	1072
04:30-4:59	1114	212	66	580	1972
5:00-5:29	1500	218	96	816	2630
5:30-5:59	1268	148	69	440	1925
6:00-6:29	706	146	49	275	1176
TOTAL	4891	888	401	2595	8775

* Add 7-10% to totals when other bus carriers use the Terminal, in addition to the five carriers listed above.

Source: Staff Working Paper of the Transit Needs Study, MTC and Caltrans, October 1993.

III. BACKGROUND

A. BACKGROUND TO TRANSBAY TERMINAL

Following the October 1989 Loma Prieta earthquake, the Office of State Architect (OSA) conducted studies for the California Department of Transportation (Caltrans), which owns and operates the facility, to evaluate the Transbay Transit Terminal. The OSA study released in 1992 concluded that the Terminal building needed substantial upgrades to meet current seismic and other fire/life/safety codes. The current estimated cost for the basic upgrades is about $36 million. This basic upgrade, however, would not address long-term transit needs and goals of the Terminal, as was emphasized in the OSA study:

> *The Office of the State Architect believes that the renovation project as proposed is an interim solution to the bus interface problems at the Terminal. If funding were available, the best interest of the public would be served by the demolition of the existing facility and its replacement with a new terminal.*

In December of 1992, in a letter to James van Loben Sels, the Director of Caltrans, Mayor Frank Jordan asked Caltrans to consider the removal of the Transbay Transit Terminal and replacement with a smaller facility that would be a more appropriately designed building to serve the functions of the Terminal. This request was made in light of the major capital cost faced by Caltrans to bring the building to seismic and other code compliance and Caltrans' interest in investigating joint development opportunities.

In early 1993 Caltrans drafted a Request For Proposal (RFP) in which the City of San Francisco was requested to jointly participate in soliciting interest in a joint real estate development of the property site of the Terminal.

On March 22, 1993, the San Francisco Board of Supervisors (Board), at the request of the Mayor, unanimously passed a resolution requesting that Caltrans work with the City to study alternatives to rehabilitation of the Terminal and to reconstruction of the nearby Terminal Separator Structure. The Terminal Separator provided an elevated connection between I-80 and the Embarcadero Freeway prior to being damaged by the earthquake. In response to the City's request, Caltrans agreed to postpone proceeding with additional improvements to the Terminal building for six months to explore joint development opportunities for a new facility. Two studies were to be undertaken:

- a Transit Needs Study conducted by the Metropolitan Transportation Commission (MTC) and Caltrans to determine existing and future transit service needs for the Terminal; and

- a report analyzing alternatives to replacement of the Terminal Separator Structure prepared by the City.

Caltrans, MTC, the City, and transit operators started working on the Transit Needs Study of the Terminal in spring of 1993. The purpose of the study was to define the transit parameters to be incorporated with a mixed use development proposal for the Transbay Terminal. In addition to considering the existing transit uses, the potential for rail extension projects that are likely to have a terminus at the Transbay Terminal building were considered. A staff working paper of the Transit Needs Study was prepared in late October 1993.

Caltrans has been proceeding with the first phase of the improvements to the Transbay Transit Terminal building which include temporary replacement of the roof and seismic bracing and shear walls. These matters needed immediate attention and could not be delayed, due to liability issues.

The Board of Supervisors stated its intention to report back to Caltrans its position on both Transbay Transit Terminal and Terminal Separator Structure issues by September 1, 1993, pending the results of both studies. The Terminal Separator Structure report was completed by the Department of City Planning in July 1993, and the Board took action on this issue before the September deadline. The Board deferred action concerning the Transbay Transit Terminal because the Transit Needs Study was not yet completed by MTC and Caltrans.

B. EXISTING LAND USE

The Transbay Transit Terminal and its bus access ramps occupy a central location within downtown San Francisco. The financial district extends to the north and east, with the waterfront beyond. Moscone Center, Yerba Buena, and the region's premier retail district are to the west. The changing South of Market, Rincon Hill/South Beach, and Mission Bay districts are to the south. The Terminal area is a central node that demarcates a transitional zone between the high density office area and the districts to the south which are more industrial and mixed in character.

The potential reconfiguration of the Terminal Separator Structure and the removal of the Embarcadero Freeway have provided additional vacant land with great potential for development around the Transbay Transit Terminal. In order to assess the new land use opportunities, the area bounded by The Embarcadero, Market Street, Fourth Street and Harrison Street (about 275 acres) was evaluated to identify the potential for development.

The northern and eastern portion of this study area is the most intensely developed. It is occupied by high rise office buildings with some ground floor retail along Market Street, and smaller and older office buildings along Mission Street. The area closest to the waterfront is built out, with the exception of the parcels that have been vacated by the demolition of the Embarcadero Freeway. This area, from Steuart to Main Streets, between Mission and Folsom Streets, is characterized by office and mixed use development from the 1970's-1990's in high rise buildings with commercial retail at ground level such as Rincon Center.

The Transbay Transit Terminal is located between Mission, First, Natoma, and Fremont Streets with ramps that sweep east and westward from the Terminal itself to form a loop connecting to the Bay Bridge. The Terminal and these ramps along with adjacent private property parcels to the east and west of the Terminal provide an opportunity for meeting future transit needs as well as development of other land uses.

The area immediately adjacent to and south of the Transbay Transit Terminal is characterized by mixed use lower buildings. Office buildings with ground floor retail predominate along major streets, such as Mission, Howard, and Second Streets while industrial uses tend to front along the alley streets such as Natoma, Tehama, and Clementina Streets. Parcels north of Folsom Street and east of Essex Street were vacated with the removal of the Terminal Separator Structure. The blocks between Main, Beale, Folsom, and Mission Streets were vacated by the demolition of the Terminal Separator Structure with the exception

of the building at 301 Mission Street, 215 Fremont and some buildings on Folsom Street. This largely vacant land represents an alternative location for meeting future transit needs and/or other land uses.

The Rincon Hill area, south of the Terminal Separator Structure, is characterized by a mixture of uses and many vacant parcels. The area bounded by Fremont, Folsom, Harrison and the former Terminal Separator Structure is characterized by mixed use buildings generally not higher than four stories. These buildings include office, industrial, institutional, and residential uses. The Embarcadero Postal Center, located on the north side of Harrison between Main and Beale Streets, occupies half of the block with a recently remodelled seven story building. Half of this block is used as accessory parking for the Post Office and half of the adjacent lot to the east is used by Golden Gate Transit for midday bus storage. Adjacent to the Golden Gate Transit parking is a cluster of four to five story buildings, some of which are used for office and industrial activities and some of which are vacant. This cluster of vacant parcels and parking lots, many of which are public property, provide a potential location for the development of new land uses.

Hills Plaza, located between Spear, Folsom, Steuart, and Harrison Streets, is a new mixed use development of 80 to 170 feet high. It accommodates retail use on the ground floor, office use along Spear Street, and residential condominiums on the top floors.

To the west of the former Terminal Separator Structure, along Second Street, there is a mixture of buildings with office space in the upper floors and ground floor retail. These structures are generally less than 100 feet high with the exception of Marathon Plaza. The area west of Second Street, which includes the San Francisco Museum of Modern Art and Yerba Buena Gardens, as well as Moscone Center, is characterized by cultural and institutional uses, mixed with retail and some office use along Market, Mission, New Montgomery, and Hawthorne Streets.

Taking advantage of the recent availability of vacant land freed up by the removal of the freeways and reexamining the Transbay Transit Terminal's use of land offer significant opportunities for developing new land uses which could be realized in conjunction with meeting potential growth in the needs for regional and local transit service. Another advantage for the development of these facilities within this area is the availability of large government owned parcels or contiguous parcels owned by a single private owner. These opportunities are enhanced by the central location of this area, at the border of the financial district, surrounded by fast growing areas such as Mission Bay and South of Market, and close to entertainment and convention facilities at Moscone and Yerba Buena Centers.

C. PLANNING CONTEXT

The Transbay Transit Terminal's location in between the financial district, the retail district and Yerba Buena Center, the waterfront, and the emerging districts to the south underscores its position as the region's major transit hub. This central and transitional location also underscores the potential which the Terminal and the land adjacent to it have to accommodate land uses which support and tie together its surroundings and are important to the future of the City and the region.

A decade ago the Downtown Plan zoned the area around the Terminal for high density development. Planning for redesign of the Embarcadero Roadway, establishment of rail transit along the waterfront, and development of Mission Bay have also been underway since the mid-1980s. The damage caused by the 1989 Loma Prieta earthquake to freeway structures near the Terminal and along the waterfront, more than anything else, has highlighted opportunities for comprehensive planning to address transportation and land use changes as the City moves forward toward the next century.

This portion of the report focuses on major transportation projects underway in the vicinity of the Transbay Transit Terminal (see Figure 4). Changes to The Embarcadero Roadway and its connecting roadways are central to all the major projects being developed. Before the earthquake, the Embarcadero Roadway was being designed as a surface boulevard with two lanes in each direction plus turning pockets, a continuous twenty-five foot pedestrian promenade along the waterfront, and rail transit generally in the median. The designs for The Embarcadero segments south of Folsom Street and north of Broadway were not greatly affected by the decision to demolish the elevated Embarcadero Freeway after it was damaged by the earthquake. These segments are currently under construction, with completion of the southern portions scheduled for late 1994 and the northern portions scheduled for late 1995.

The southern Embarcadero Roadway will connect with a similarly designed new King Boulevard, which will be the central thoroughfare through the developing Mission Bay area. At its western end, King Boulevard will provide access to new I-280 on- and off-ramps situated between Fifth and Sixth Streets. Caltrans will build these new I-280 freeway ramps following demolition of the existing I-280 stub-end and off-ramp to Berry Street.

South of Folsom Street, The Embarcadero Roadway median will include a MUNI Metro Turnback Facility to upgrade service and improve operations in MUNI's Market Street subway. The Embarcadero Roadway and King Boulevard medians will also accommodate a surface extension of MUNI Metro service into Mission Bay by 1996. A study now underway is examining the future potential for an additional extension of MUNI Metro service into the Bayshore Corridor. Studies are also underway examining a variety of options for extending Caltrain beyond its existing terminal at Fourth and Townsend.

The Embarcadero Roadway between Folsom Street and Broadway was originally designed based on the assumption that the elevated Embarcadero Freeway would remain. The City's decision not to replace the earthquake-damaged Embarcadero Freeway has triggered new design alternatives and a complicated environmental review process for the Mid-Embarcadero section. With the elimination of the elevated Embarcadero Freeway, the surface Mid-Embarcadero Roadway will need to handle freeway traffic not only from I-280 via King Boulevard but also I-80 traffic destined to the waterfront and districts to the north.

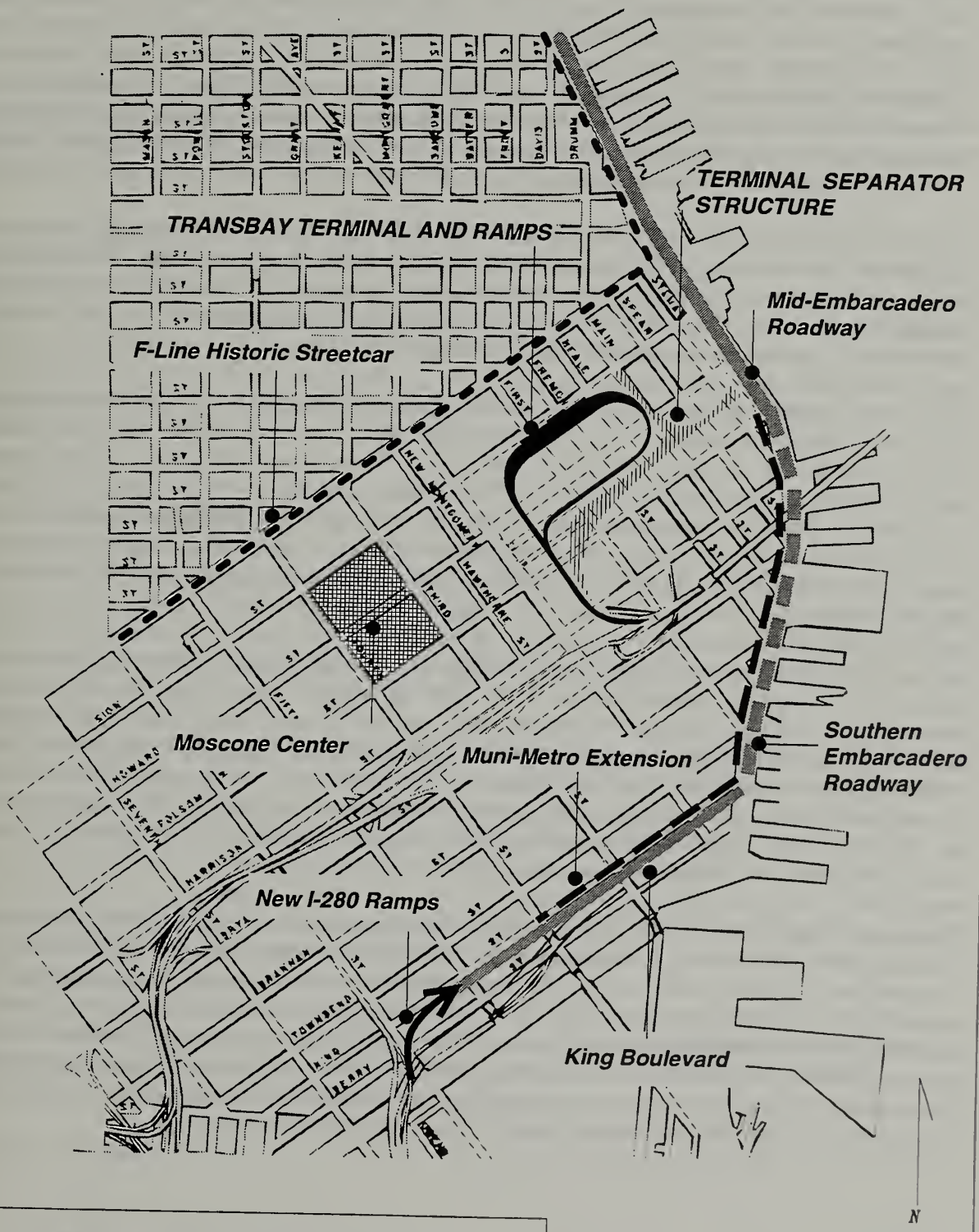

Figure 4
PLANNING CONTEXT

Depending upon the nature of the connection to I-80, the Mid-Embarcadero Roadway will have two or three traffic lanes plus turning pockets, a median for rail transit, and a waterfront pedestrian promenade. The alternatives under consideration include surface roadway treatment as well as a partial northbound underground segment in front of the Ferry Building. All alternatives accommodate F-line historic streetcar service in the median, which is also incorporated into the segment of The Embarcadero Roadway north of Broadway currently under construction. The F-line will be a surface historic streetcar operation and its waterfront alignment will extend into Fisherman's Wharf and connect with service on Market Street. F-line service on Market Street between Castro Street and Fremont Street will start in 1995. There will be an interim F-line terminal at the Transbay Transit Terminal until waterfront service can be established.

Selection of a preferred alternative for The Mid-Embarcadero Roadway is fundamentally affected by the nature of the connection to I-80. Caltrans has developed plans to fully rebuild the Terminal Separator Structure (TSS) which formerly provided an elevated connection between both directions of I-80 and the Embarcadero Freeway. Without the Embarcadero Freeway, full restoration of the TSS would likely increase traffic volumes directed to The Mid-Embarcadero Roadway.

In the spring of 1993, the Mayor and the Board of Supervisors secured Caltrans' cooperation so that the City could examine alternatives to a full rebuild of the TSS. In a report released by the Department of City Planning in July 1993, six alternatives to the Caltrans TSS proposal are identified. These alternatives can be clustered into two groups. One set of TSS alternatives utilizes much of the TSS right-of-way and either rebuilds ramps to The Embarcadero or ramps to Main and Beale Streets but not both. The other set of TSS alternatives significantly reduces the amount of elevated structure by establishing intermediate ramps to improve access to and from the south on I-80 as well as reorienting some access to and from the Bay Bridge.

Each of the City's alternatives to the Caltrans TSS proposal would reduce the number of freeway access ramps and place greater reliance on use of the South of Market surface street network for access to downtown, the waterfront, Chinatown, North Beach, and Fisherman's Wharf. Each of these alternatives to varying degrees would also create opportunities for reuse of lands which have in the past been dedicated to freeway structures. The Board of Supervisors has requested detailed traffic studies of all TSS alternatives and is expected to narrow the range of alternatives in early 1994. This decision will affect not only the Terminal Separator Structure but also the design, environmental review process, and schedule for completion of The Mid-Embarcadero Roadway.

The ultimate configuration of the TSS and its associated impacts on the traffic-carrying capacity of The Embarcadero Roadway have both transportation and land use implications for the Transbay Transit Terminal area. There would be different routing patterns for freeway access with the various TSS alternatives for properties developed in this area. Different approaches to addressing freeway access would also create variable new land use opportunities. Decisions on freeway access and land use development will also broaden or narrow the extent to which identified future transit service needs can be satisfied. The manner in which future transit service needs are addressed will in turn affect the ability of the area to pursue a transit-oriented development pattern which reduces traffic impacts.

IV. FUTURE TRANSIT NEEDS

A. TRANSIT NEEDS STUDY SUMMARY

A staff working paper of the Transit Needs Study, dated October 1993, has been prepared by the Metropolitan Transportation Commission and Caltrans to identify current uses and deficiencies, as well as future needs of the Transbay Transit Terminal (Terminal). The study has been conducted at the request of Caltrans and the City of San Francisco with input from both agencies and transit operators.

The staff working paper of the Transit Needs Study is summarized in this report in order to define the transit program and parameters for potential future transit services using the Terminal. The staff working paper provides a detailed portrait of projected transit service needs as they affect the Transbay Transit Terminal. The study is intended to assist Caltrans and the City in assessing whether substantial investments should be made in the existing Terminal or, if joint development options are explored, what specific transit parameters would need to be addressed. This section summarizes the findings of the staff working paper of the Transit Needs Study relevant to the projected future operational needs of the Terminal.

Projected Future Transit Service Needs

To determine the future needs of the Terminal facility, both bus services and potential rail extension services were considered. Transit operators were asked to provide twenty year projections to identify future bus service needs. For rail extension services, all potential rail projects were examined. Table 5 provides a comparison of the existing uses and potential future needs of the bus operators of the Terminal facility.

In general, the staff working paper of the Transit Needs Study projects that bus service to the Terminal may increase by 60 percent over the next twenty years, and the number of passengers using the Terminal facility may almost double over the same period. The largest increase in service is assumed for AC Transit and Greyhound. AC Transit projects that its service would increase by 169 percent, and Greyhound expects that its service would increase by 80 percent if projected growth occurs. AC Transit's growth projections are substantially greater than the 112 percent growth projected for AC Transit based on results from MTC's regional transportation model. The present report utilizes the optimistic projections of AC Transit and other operators cited in the staff working paper of the Transit Needs Study to assure adequate accommodation of future transit service needs.

Based on projections in the Transit Needs Study, AC Transit would require forty bus berths on the third floor deck. Overall for the Terminal site and adjacent streets, the need for additional bus berths would increase from the existing 61 to 82 passenger boarding areas.

The four rail services with a terminus at or near the Terminal site that were considered are:

- MUNI Rail Line Extensions,
- Caltrain Downtown Rail Extension,
- High Speed Intercity Rail, and
- Bay Bridge Rail Extension, "Bay Link."

TABLE 5

1992 AND PROJECTED 2013 DAILY BUS OPERATIONS AT THE TRANSBAY TRANSIT TERMINAL SITE				
	# of Bus Stops	Daily Bus Arrivals And Departures #	# of Passengers per Day	Midday Bus Storage Need
Interior Bus Deck				
1992	41	1,082	18,830	
2013	59	2,423	43,450	
Percentage Increase	43.9	123	130.7	
Exterior Hump and Crescent				
1992	7	1,272	7,700	
2013	9	1,497	9,020	
Percentage Increase	28.6	17.7	17.1	
On First, Fremont & Natoma				
1992	13	396	4,480	
2013	14	469	5,150	
Percentage Increase	7.7	18.4	14.9	
Total				
1992	61	2,750	31,010	87
2013	82	4,389	57,620	200
Percentage Increase	34.4	59.6	85.8	129.9

Source: Staff Working Paper of the Transit Needs Study, MTC and Caltrans, October 1993.

There are many uncertainties associated with each of the rail extension projects. Most of these projects are at preliminary stages of study. Implementation of any of these proposals is contingent upon a number of major issues such as funding, engineering feasibility studies, environmental impact analysis, etc.

The existing Transbay Transit Terminal building does not have the capacity to accommodate many of the bus service needs projected for the next twenty years without significant modifications. It is also unlikely that the rail projects could be accommodated in the existing terminal without substantial design changes. The Transit Needs Study notes that:

> *All of the rail proposals addressed in the report that would terminate at or near the Terminal would require significant redesign of the existing Terminal and could likely require rebuilding of the facility.*

B. ALTERNATIVE X - MODIFICATIONS TO EXISTING TERMINAL

There are a variety of possible approaches for adapting the existing Terminal to try to meet future transit service needs. Horizontal or vertical expansions may be feasible as well as changes to layout of the existing bus platform and ramps. Vertical expansion by creating a second level bus deck would require substantial modifications to the existing bus ramps to provide access to both the existing deck as well as the new deck.

Horizontal expansion of the existing Terminal was investigated over a decade ago in a series of studies conducted for the San Francisco Bay Area Transportation Terminal Authority (SFBATTA). The SFBATTA studies considered an expansion primarily south of Natoma Street and involved private property acquisition. These studies did not consider changes to the existing bus deck to create additional space. Preliminary investigations for the present report indicate that a horizontal cantilever extension of the bus deck over the Terminal hump area to Mission Street in combination with reconfiguration of the bus deck may provide enough space for future bus service needs. This approach has not been developed because it would require removal of the Terminal hump area, increase conflicts between pedestrians and transit vehicles, and compromise the architectural integrity of the existing Terminal building (see Alternative 1 in Appendix A).

Vertical expansion of the existing Terminal was examined as another option in the SFBATTA studies. Addition of a second bus deck may also be explored as part of the ongoing examination of alternatives for extending Caltrain service. One set of options for extending Caltrain being investigated would utilize the existing ramps and Terminal platform for a Caltrain station. Use of the existing Terminal for Caltrain would likely require a second deck in order to meet future bus service needs.

Preliminary investigations for the present report indicate that a second deck to the existing Terminal could be built but would present difficult challenges in accomplishing the ramp splits to serve both the existing and additional deck levels within Caltrans-owned right-of-way. It would also be difficult to develop a ramp connection between the second bus deck and the surface street network. Each existing bus operator would need some access to the surface street network, especially the two largest operators, Greyhound and AC Transit. Greyhound has many routes which do not use the Bay Bridge, and AC Transit would need this access because there would not be enough space to meet its future midday bus storage needs on-site. Because an upper deck may not be viable for existing bus operators, this option was not developed (see Alternative 2 in Appendix A).

The present report focuses on development of an alternative for modifying the existing Terminal without a vertical expansion and only modest horizontal expansion. Alternative X would basically retain the existing Terminal building facade and create additional space for buses by reconfiguring the existing bus deck. The existing configuration with three lanes would be changed to four lanes and the bus platform would be extended westward and eastward towards the bus ramps (see Figures 5-8). This could probably be accomplished within Caltrans-owned property. It would lengthen the bus platform area and reduce the ramp area available for midday bus storage slightly. Reconfiguration of the bus deck from three to four lanes would require an entirely new set of pedestrian stairs and ramps and revamping of the interior of the Terminal at the mezzanine level and above.

Alternative X would foreclose the possibility of direct Caltrain or other rail service into the Terminal. An extension of Caltrain and/or high speed rail could be accommodated in a separate underground rail station located underneath Howard Street and private property between Natoma and Howard Streets. Surface alternatives for a Caltrain extension without an interface to the Transbay Transit Terminal would not be foreclosed.

Construction costs would be an estimated $93 million for a modified Terminal (see Appendix B). Joint development potential would likely be limited for Alternative X. An independent structural support system would be needed for any sizable structure above the Terminal. Access to an upper level building from Mission Street would be difficult because of MUNI and SamTrans operations there. Development which included the private property between Natoma and Howard Streets would allow building access from Howard Street. Because transit functions would occupy most of the block at the first three levels, only joint development ventures which can be successful with land uses located above these levels would be viable.

The principal features of Alternative X which modifies the existing Terminal would be as follows:

- future bus berthing needs identified in the Transit Needs Study for those operators currently within the Terminal are fully satisfied;
- berths continue to be provided in the Terminal hump and crescent area for existing MUNI and SamTrans service;
- the segment of existing Golden Gate Transit service which occurs on-street would continue to take place on-street;
- the existing, grade-separated bus ramp loop for access to and from the Bay Bridge would be retained as well as access to the surface street network;
- potential underground rail extensions could be accommodated in an adjacent terminal which could be staged to be included with development of private properties between Howard and Natoma Streets;
- existing AC Transit midday bus storage needs may continue to be met on-site but an off-site storage facility would likely be needed if projected growth in these needs materialized;
- vertical pedestrian access within the Terminal would need to be revamped between the mezzanine and bus platform levels;
- opportunities for joint development above the new terminal would be limited;
- an interim bus terminal would need to be developed while the existing Terminal was revamped and construction took place;
- this alternative is not contingent upon decisions regarding the Terminal Separator Structure process.

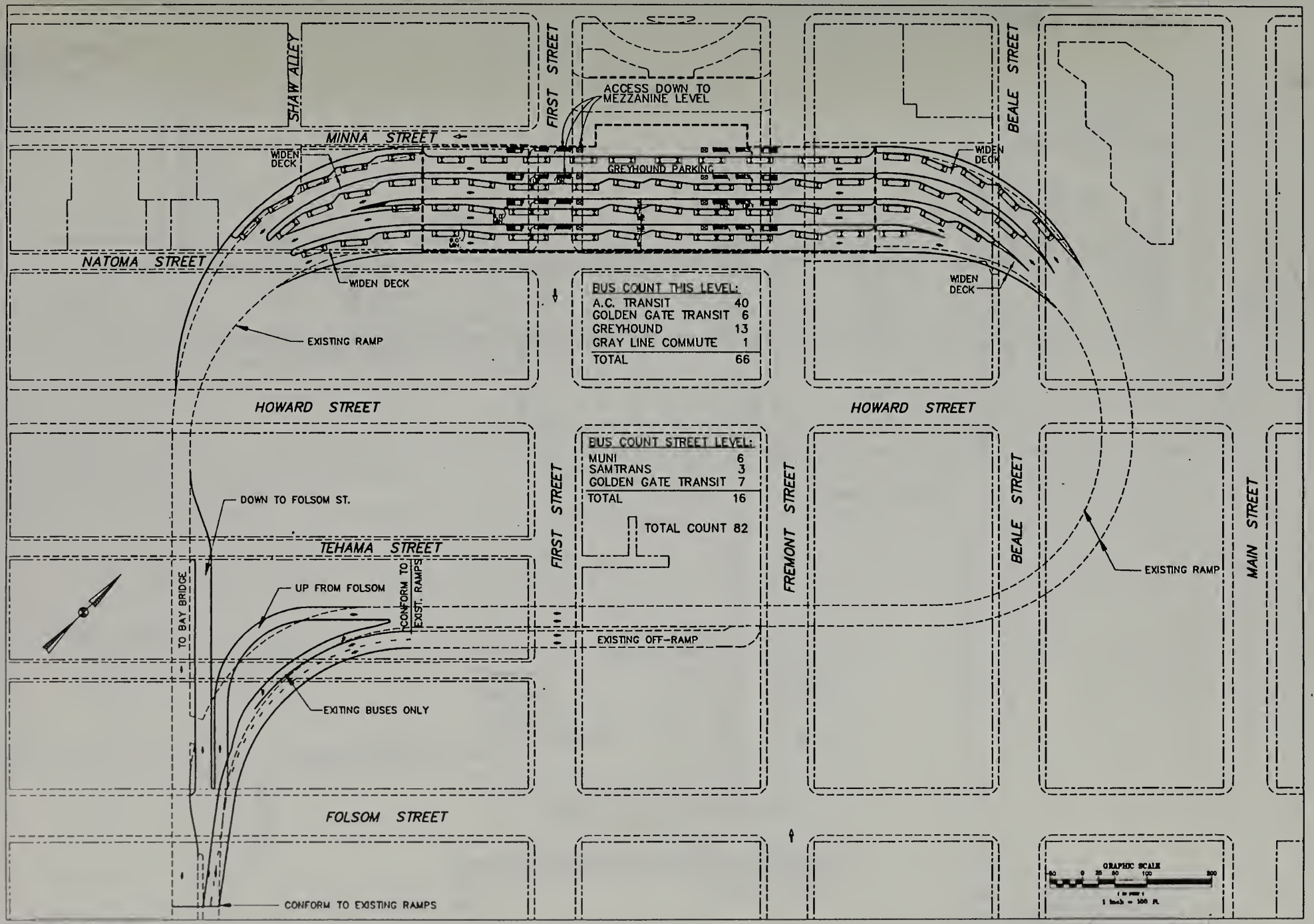

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Figure 5 - Alternative X
Modification to Existing Building,
Upper Level

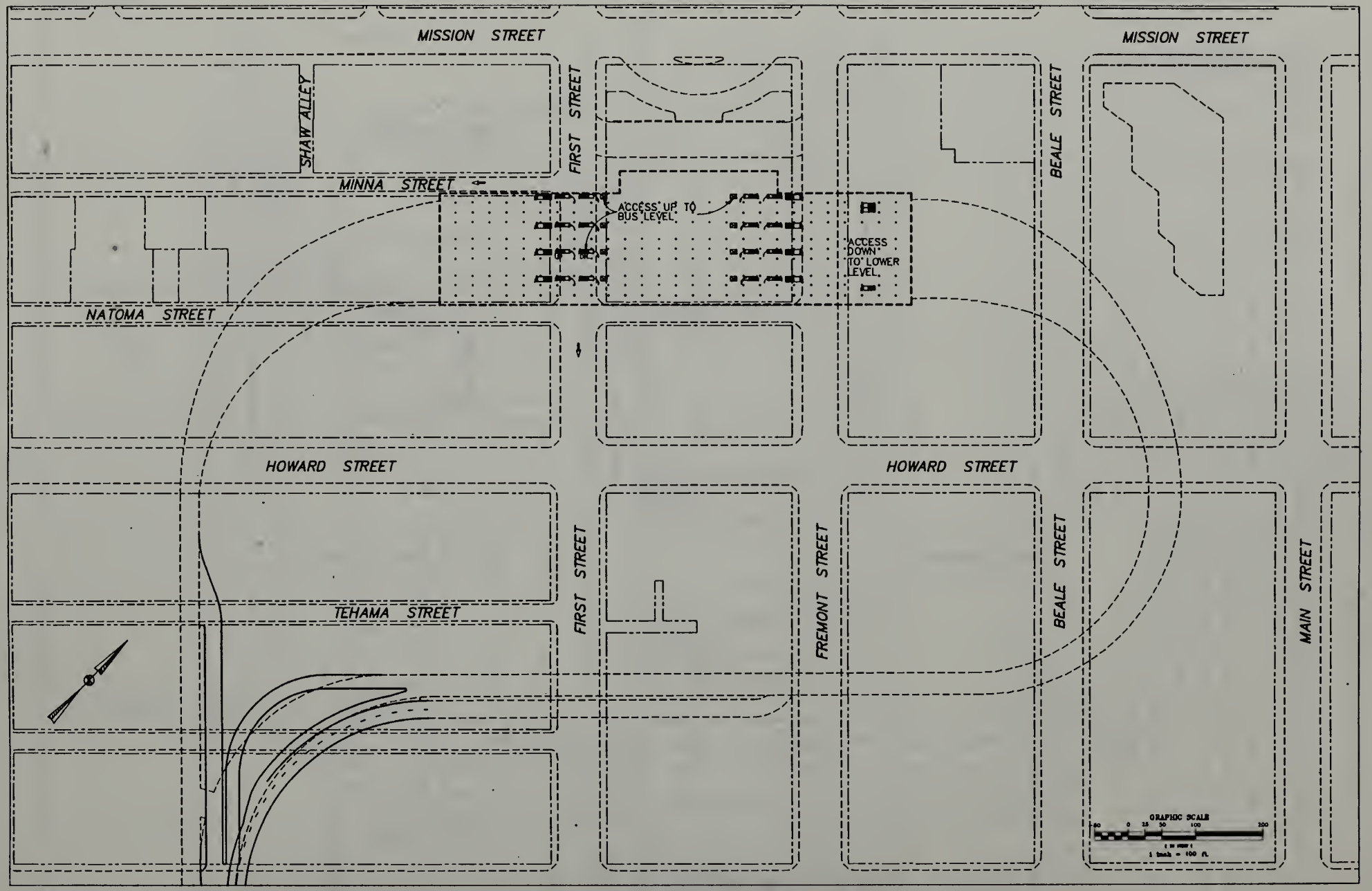

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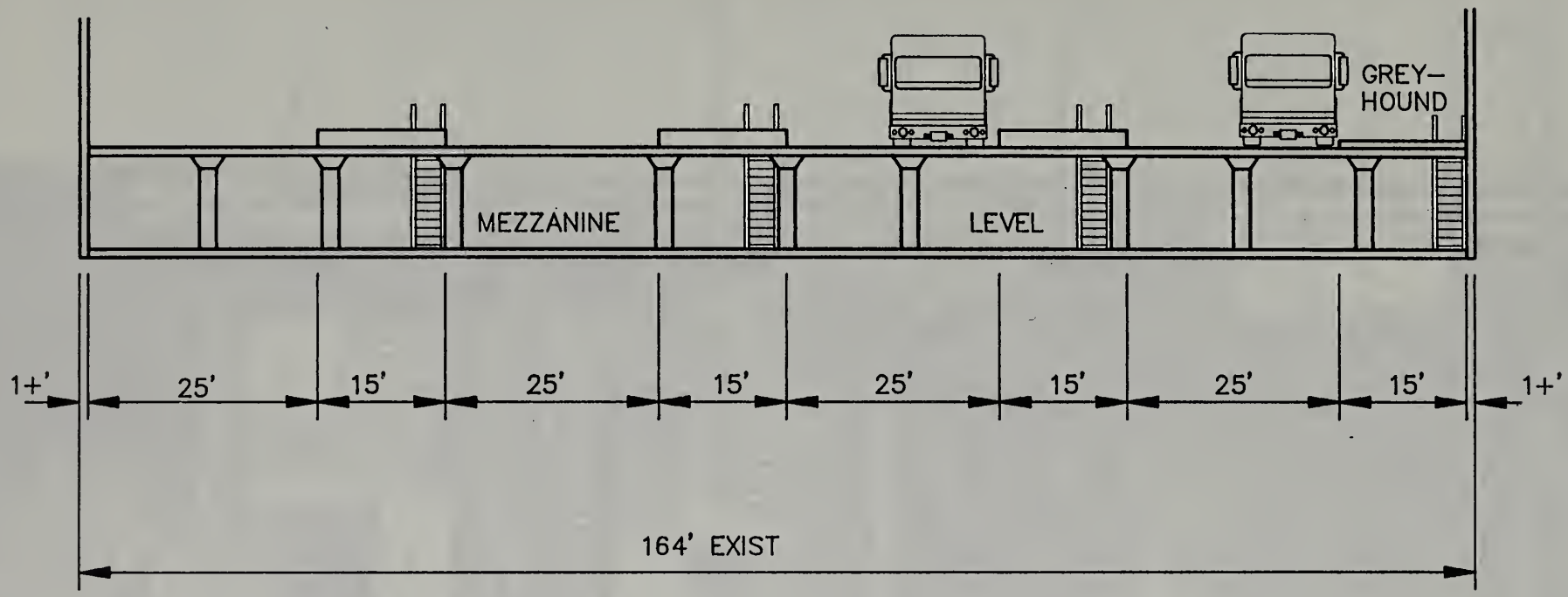
Figure 6 - Alternative X
Modification to Existing Building,
Mezzanine Level



SECTION A-A

20 0 20 40

1" = 20' GRAPHIC SCALE

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Figure 7 - Alternative X Modification to Existing Building, Terminal Section

TRANSBAY STUDY

FOR THE CITY OF SAN FRANCISCO, CALIFORNIA

CROSBY HELMICH ARCHITECTS

Figure 8 - Alternative X
Modification to Existing Building,
Section

V. ALTERNATIVES FOR A NEW TRANSIT TERMINAL TO MEET FUTURE NEEDS

Modification of the existing Transbay Transit Terminal to meet future transit service needs has significant disadvantages:

- existing transit services would be disrupted during construction;
- the costs for modifications to accommodate future transit needs as well as required seismic and Code safety compliance upgrades would be substantial;
- joint development opportunities and associated potential for private financing of improvements would be limited;
- more optimal use of ground level space within the Terminal and on adjacent Caltrans property which is presently underutilized is not remedied;
- the area surrounding the Terminal would not be enhanced.

Development of a new regional downtown transit terminal presents the opportunity to design the terminal to optimize satisfaction of existing and future transit service needs. Development of a new regional transit terminal in conjunction with consideration of the land use development potential of the surrounding area would provide the opportunity to address transit needs while enhancing the area. Joint development offers the potential for private financing of transit improvements. This section presents two alternatives for development of a new transit terminal. These two alternatives are certainly not the only alternatives which could be developed, but they do illustrate two different approaches. Alternative A maximizes opportunities for satisfying transit needs and land use development on the site of the existing Transbay Transit Terminal. Alternative B moves the new terminal to a new site which improves accessibility to the Embarcadero BART and MUNI Metro station, reduces conflicts between transit vehicles and autos, and makes the existing Terminal site available for development of new land uses.

The following assumptions for transit service have been used in the design of alternatives for a new transit terminal:

- there would be exclusive bus ramps providing access to the Bay Bridge and the surface street network;
- all future projected needs, in terms of the identified number of bus berths, would be accommodated;
- AC Transit would use dedicated bus ramps to access the Terminal;
- designs for a new transit terminal could accommodate extensions of MUNI rail service at the ground level and an underground station for a Caltrain extension and/or high speed intercity rail terminal;
- the alternatives do not include upper level rail platforms for either Caltrain, high speed intercity rail, nor Bay Link service.

A. ALTERNATIVE A - NEW TERMINAL AT EXISTING TERMINAL SITE

This alternative sites a new regional transit terminal primarily underneath potential land uses in the blocks bounded by Mission, Beale, Natoma, and First Streets on the existing Transbay Transit Terminal site (see Figure 9). Bus operations would be accommodated in a two level facility.

MUNI, Golden Gate Transit, and SamTrans would use a street level terminal directly above an underground facility (see Figure 10). The six bus platforms and twenty-two bus berths provided would

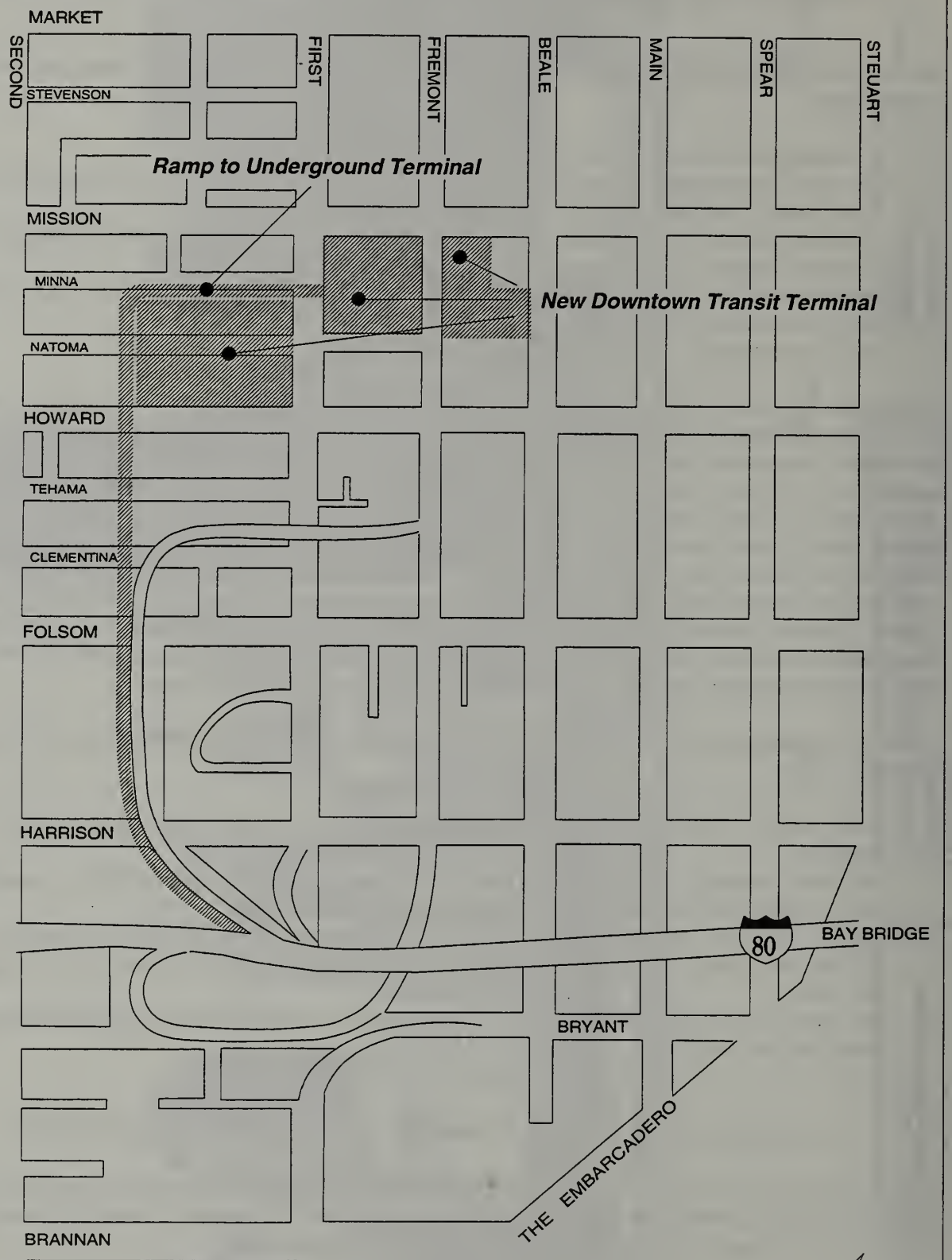

Figure 9
ALTERNATIVE A - EXISTING TERMINAL SITE
On Grade and Underground

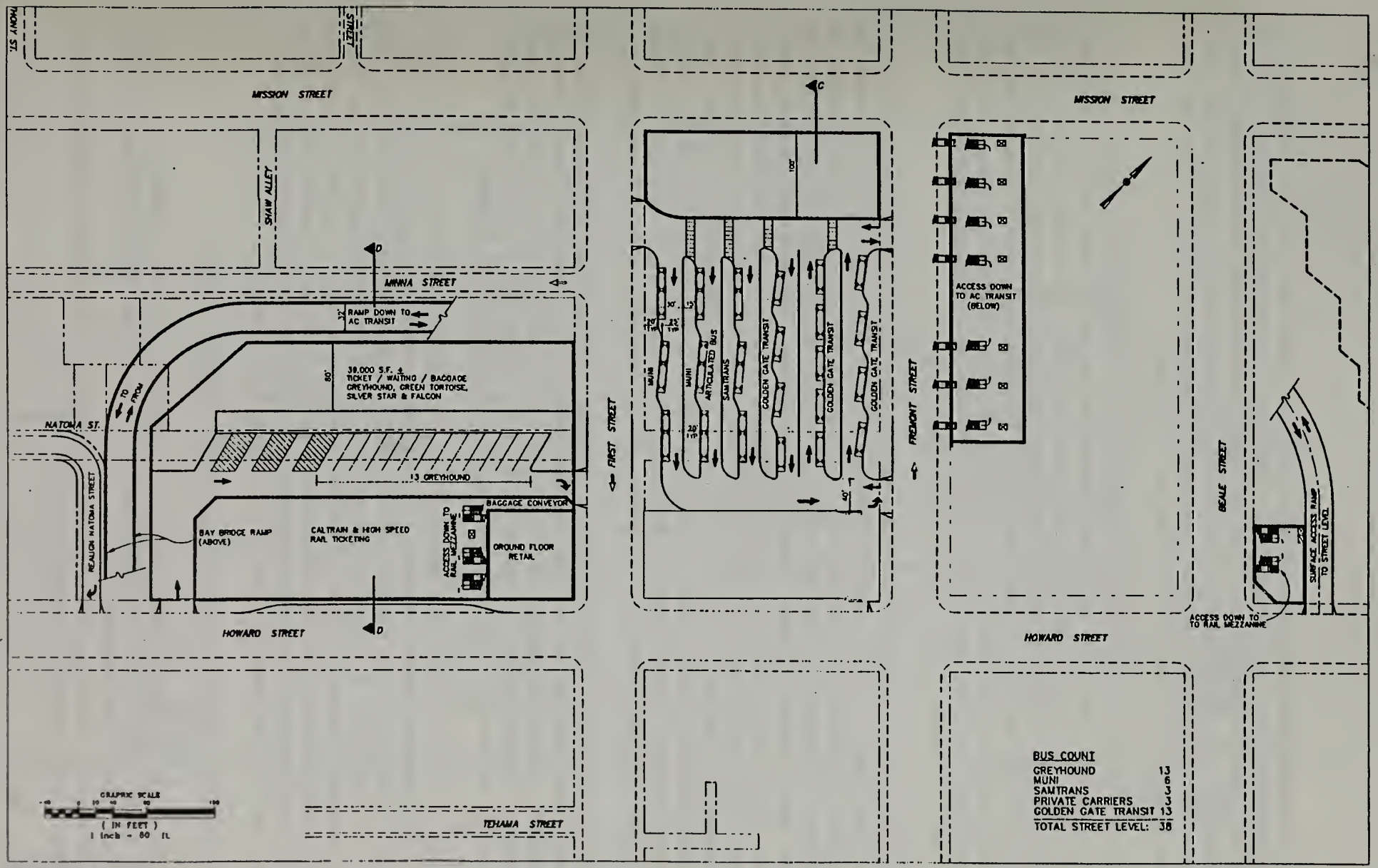

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Figure 10
Alternative A-Existing Terminal Site
Transit Terminal
Street Level Plan

meet the future needs projected for these operators in the Transit Needs Study, including needs which are currently satisfied on-street. Transit lanes on First and Fremont Streets adjacent to the terminal would facilitate bus operations into and out of the terminal. Each operator's current movement patterns would be accommodated. The facility is designed for bus service but could be modified to accommodate surface light rail service in the future. Pedestrian access would be mid-block from Mission Street. No on-site space for midday storage of buses would be provided at street level.

AC Transit and other regional bus services using the Bay Bridge would occupy a ventilated underground terminal (see Figures 11 and 12). The five bus platforms and forty-one bus berths provided would meet the future needs for these operators projected in the Transit Needs Study. An exclusive two-way bus ramp would pass underneath First Street and transition to an elevated structure to provide direct access to and from the Bay Bridge and to the surface street network. Pedestrian access would be from Mission and through a ticketing and waiting area at street level on the east side of Fremont Street. Some on-site space would be available which may meet existing midday bus storage needs, but future growth in bus storage needs would likely have to be satisfied in an off-site location.

In the short term, it would be possible to accommodate Greyhound and other long haul bus operators in the underground terminal, which would be underutilized until AC Transit's projected expansion in its service needs materialized. In the medium term, Greyhound and other long haul bus operators could be accommodated in a separate but connected terminal at street level west of First Street between Howard and Minna Streets as shown in Figure 10 which could be incorporated into development of these private properties. The twenty bus berths and 35,000 square feet for ticketing, baggage handling, information, and other ancillary space shown in Figure 10 would meet the needs for these operators projected by the Transit Needs Study. Bus access to this terminal would have entry from Howard Street and exit to First Street. Pedestrian access would be from First and Howard Street. Alternatively, it may also be possible to accommodate future Greyhound needs underground or at the surface level by use of private parcels located between Natoma, Howard, First, and Fremont Streets in conjunction with joint development.

An adjacent underground rail station could be accommodated between Natoma and Howard Streets. A single level stub-end terminal could accommodate eight tracks, with six reserved for a Caltrain extension and two reserved for high speed rail service, with a 1000-1400 feet train platform to accommodate 10-car train operation. Pedestrian access to a rail station would be from Howard or from internal stairways, escalators, and elevators from within other portions of the transit terminal (see Figures 12-14).

One privately owned parcel at the southeast corner of Mission and Fremont Streets and several private parcels west of First Street between Natoma and Howard Streets would be required for Alternative A (see Figure 15). Construction costs would be an estimated $79 million for a new transit terminal (see Appendix B). Alternative A maximizes opportunities for joint development above the new transit terminal, particularly if the new terminal and the land use program above were designed and built at the same time. The plaza fronting on Mission Street would provide ample space to accommodate access to upper level uses in addition to access to the new terminal. A greater variety of potential joint development land uses would likely be viable with development available from the second level and above.

The principal features of this new downtown transit terminal would be as follows:

- future bus berthing needs identified in the Transit Needs Study are fully satisfied;
- berths are provided within a terminal to replace existing on-street loading operations by Golden Gate Transit and other operators;
- grade-separated bus ramp access to and from the Bay Bridge is provided from the west side of the new terminal as well as access to the surface street network;

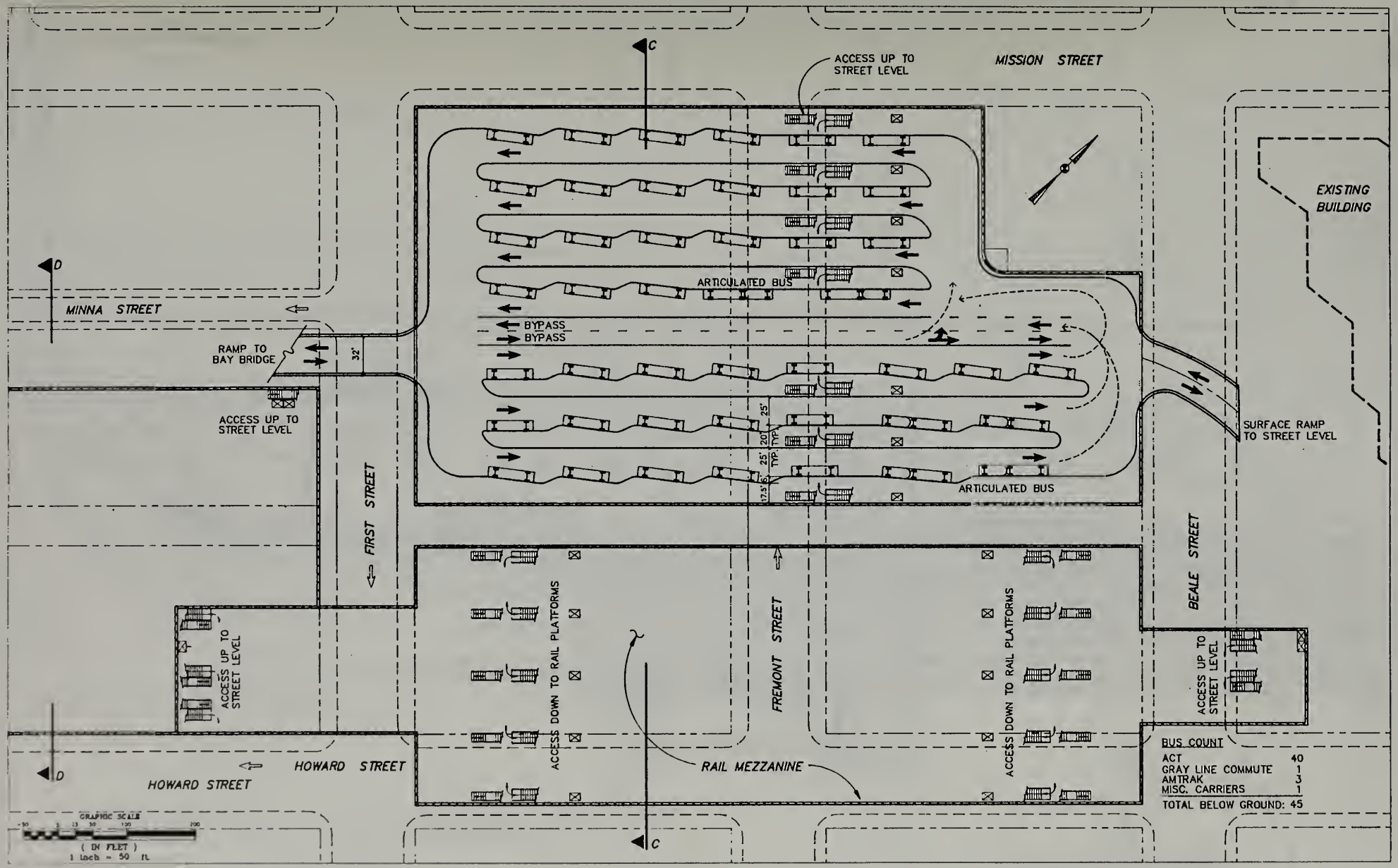

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Figure 11 - Altemative A
New Transit Terminal,
Existing Site, Below Ground
Level Plan

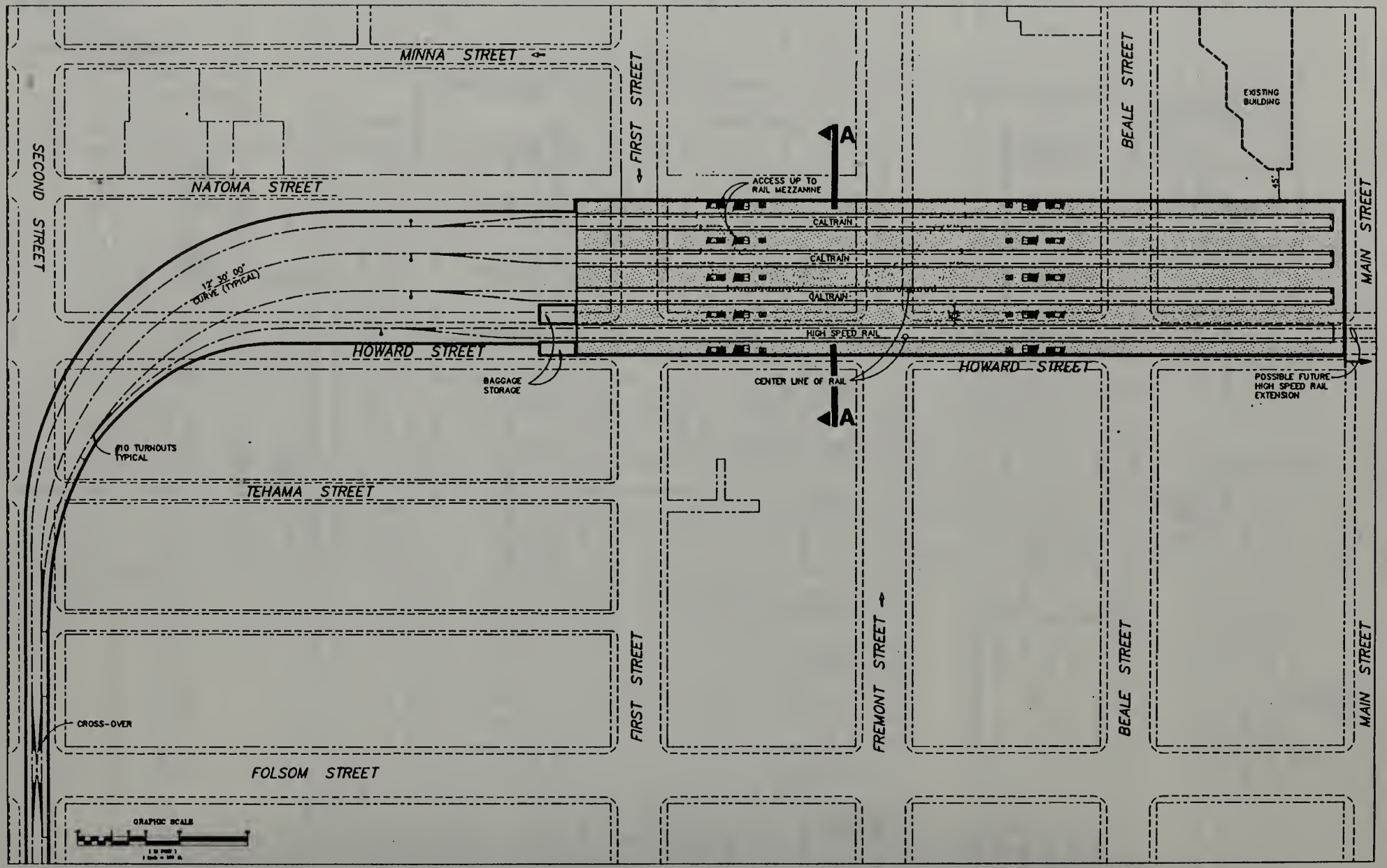

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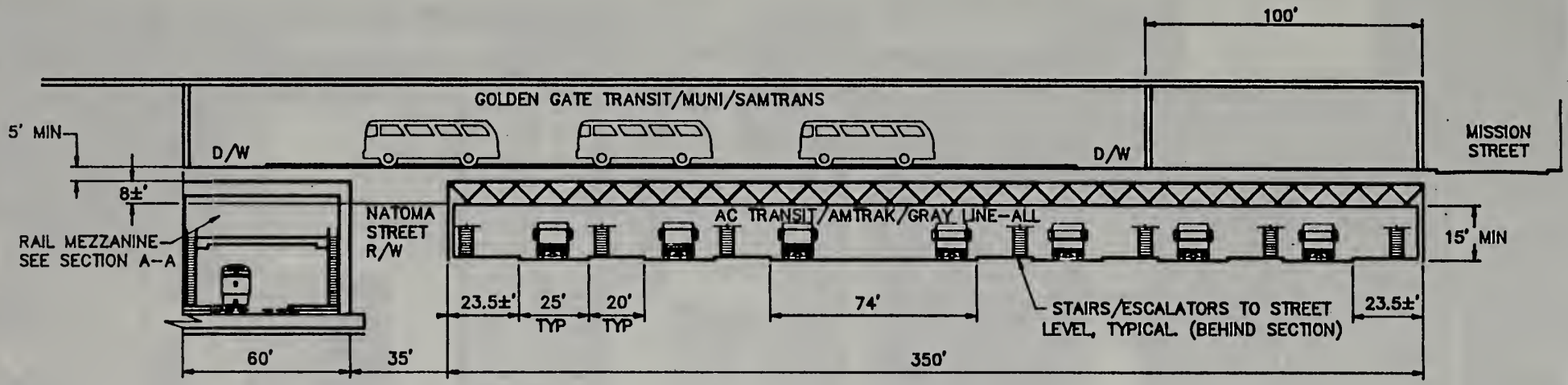
Figure 12 - Alternatives A & B
Underground Rail Platform Level



SECTION C-C

40 0 40 80

1" = 40' GRAPHIC SCALE

Figure 13 - Alternative A
New Transit Terminal,
Existing Site,
Transit Terminal Section
West of Fremont Street

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TRANSBAY STUDY

FOR THE CITY OF SAN FRANCISCO, CALIFORNIA

CROSBY HELMICH ARCHITECTS

Architects
Planners
Interior Designers

Figure 14 - Altemative A
New Transit Terminal, Existing Site
Section

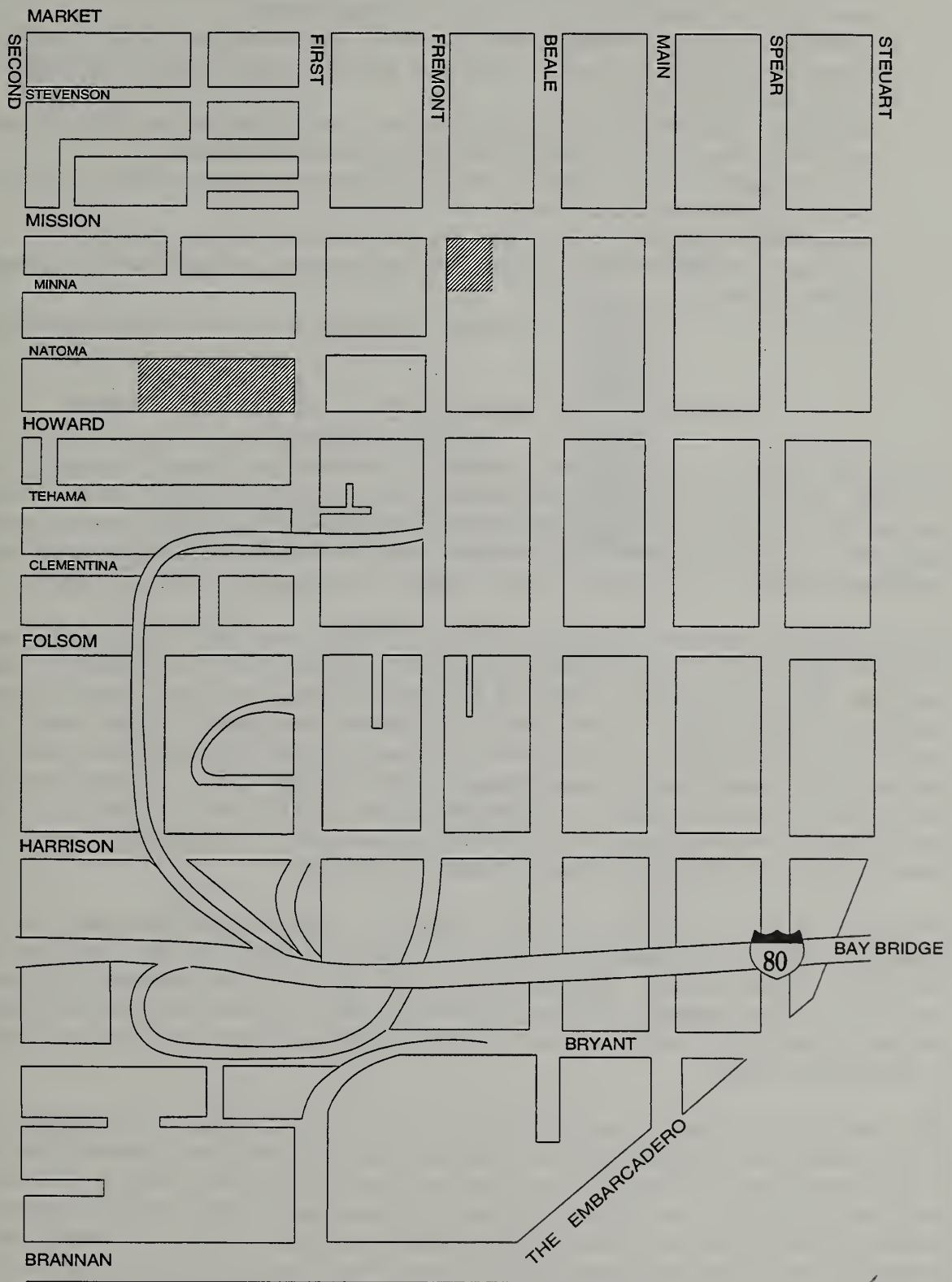

Figure 15
ALTERNATIVE A - NEW TRANSIT TERMINAL
Private Land Acquisition

- the two-way, shorter ramp for bus access would eliminate the existing extensive ramp structure located north of Folsom Street between Essex and Beale Streets;
- Greyhound and potential underground rail extensions are accommodated in adjacent, interconnected terminals which could be staged to be included with development of private properties between Howard and Natoma Streets;
- existing AC Transit midday bus storage needs may be met on-site but an off-site storage facility would likely be needed if projected growth in these needs materialized;
- vertical pedestrian access is provided between all levels of the transit terminal and potentially to development above the new terminal;
- opportunities for joint development above the new terminal would be maximized;
- an interim bus terminal would need to be developed while the existing Terminal was demolished and new construction took place;
- this alternative is not contingent upon decisions regarding the Terminal Separator Structure process.

B. ALTERNATIVE B - NEW TERMINAL AT MAIN/BEALE SITE

This alternative sites a new regional transit terminal in the right-of-way formerly occupied by the Main and Beale Street freeway ramps for the Terminal Separator Structure located north of Folsom Street between Main and Beale Streets and south of the existing Pacific Gateway Building on Mission Street (see Figure 16). The new bus terminal would consist of a street level, mezzanine level, and upper level. This would make the site of the existing Terminal available for development of new land uses.

MUNI, SamTrans, and Golden Gate Transit would use street level terminals located beneath a mezzanine level (see Figure 17). Three bus platforms and nine bus berths would be provided for MUNI and SamTrans north of Howard Street. Four bus platforms and thirteen bus berths would be provided for Golden Gate Transit south of Howard Street. Transit priority treatments to facilitate transit operations could be developed on Main and Beale Streets more easily than on First and Fremont Streets, and the latter set of streets could function as auto-oriented streets for freeway access. The facility is designed for bus service but could be modified to accommodate surface light rail service in the future. Pedestrian access would be from the transit plaza at Mission and Beale Streets or from Howard Street. No on-site space for midday storage of buses would be provided at street level.

Greyhound and other long haul bus operators would be accommodated at the mezzanine level, directly beneath the upper level bus platform (see Figure 18). These operators would use a bus access ramp for Bay Bridge access and to reach the surface street network. The twenty bus berths and 35,000 square feet for ticketing, baggage handling, information, and other ancillary space would meet the needs projected by the Transit Needs Study. Pedestrian access would be from the transit plaza at Mission and Beale Streets or from Howard Street.

AC Transit and other operators using the Bay Bridge would occupy the upper level (see Figure 19). The five bus platforms and forty-one bus berths would fully meet the needs of these operators projected in the Transit Needs Study. An elevated two-way bus ramp would provide direct access to and from the Bay Bridge and to the surface street network. Primary pedestrian access would be from a transit plaza in the former TSS right-of-way at Mission and Beale Streets through a ticketing and waiting area at the mezzanine level, with secondary access from Howard Street. Some on-site space would be available which may meet existing midday bus storage needs, but future growth in bus storage needs would likely have to be satisfied in an off-site location. Additional bus storage space to meet the projected needs of AC Transit and other operators could potentially be provided by widening the elevated bus access ramp or by midday use of several bus aisles when service demands would be less.

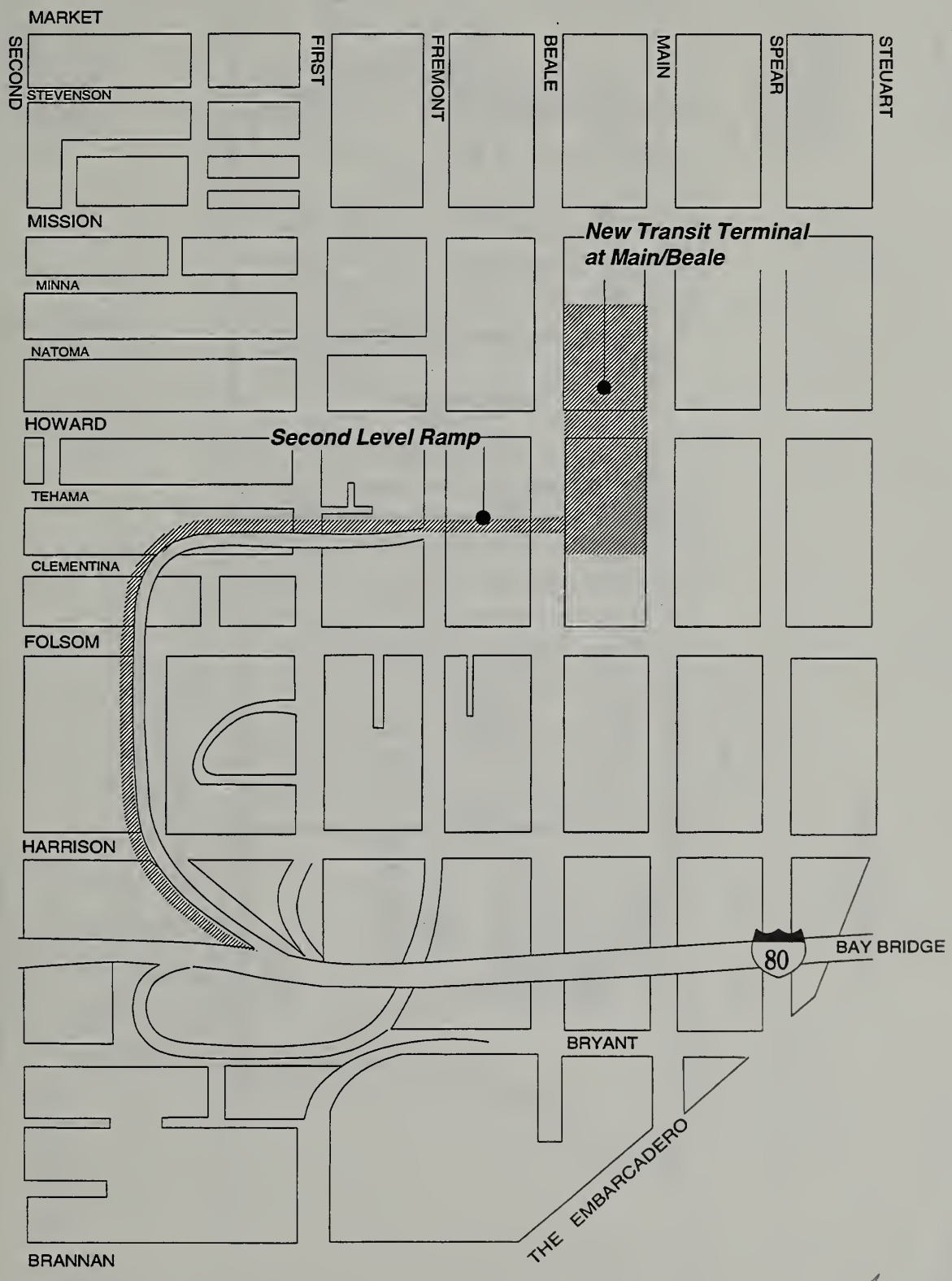

Figure 16
ALTERNATIVE B - NEW TRANSIT TERMINAL
Main/Beale Site
On Grade and Second Level

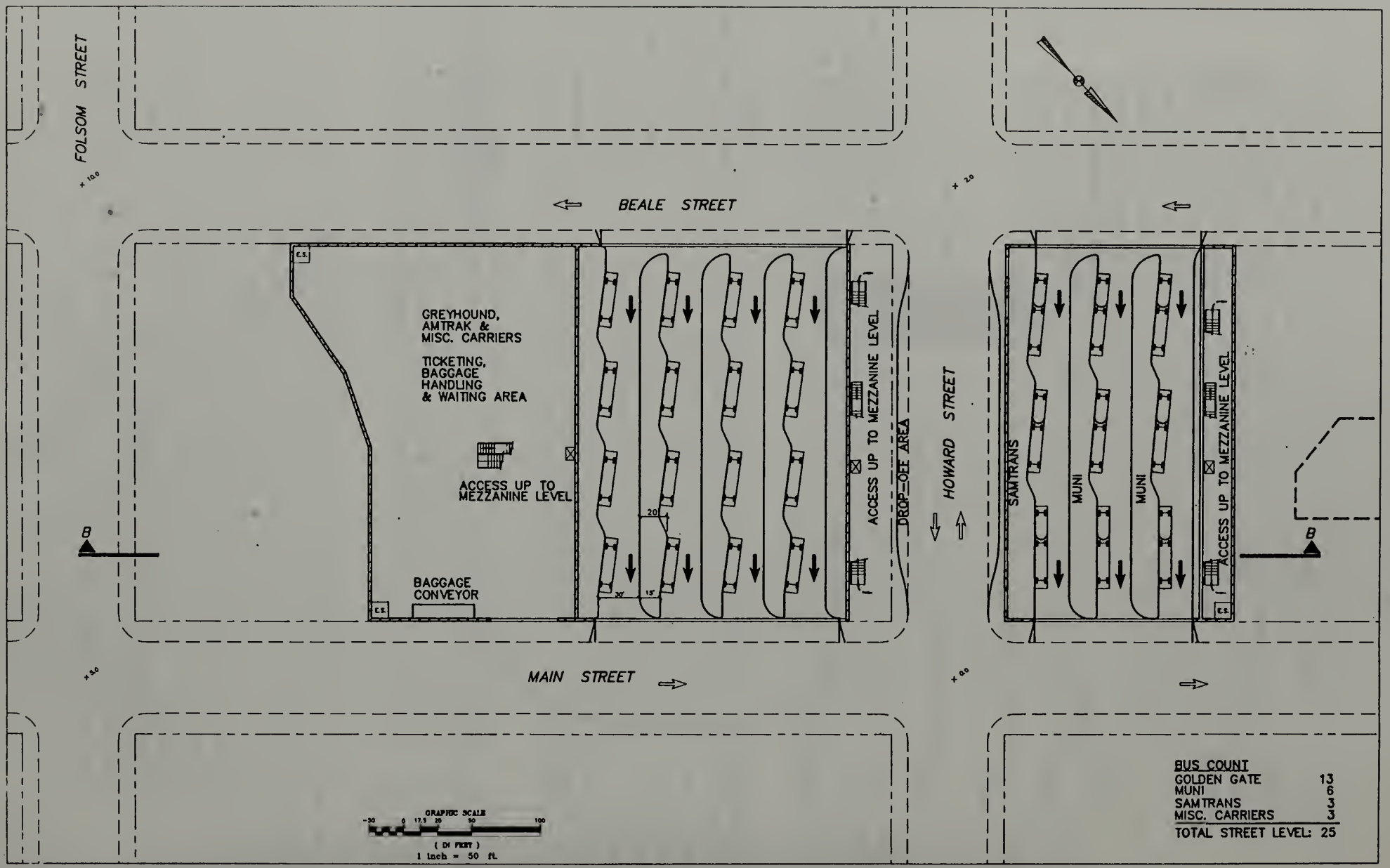

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Figure 17 - Alternative B New Transit Terminal, Main/Beale Site, Ground Level Plan

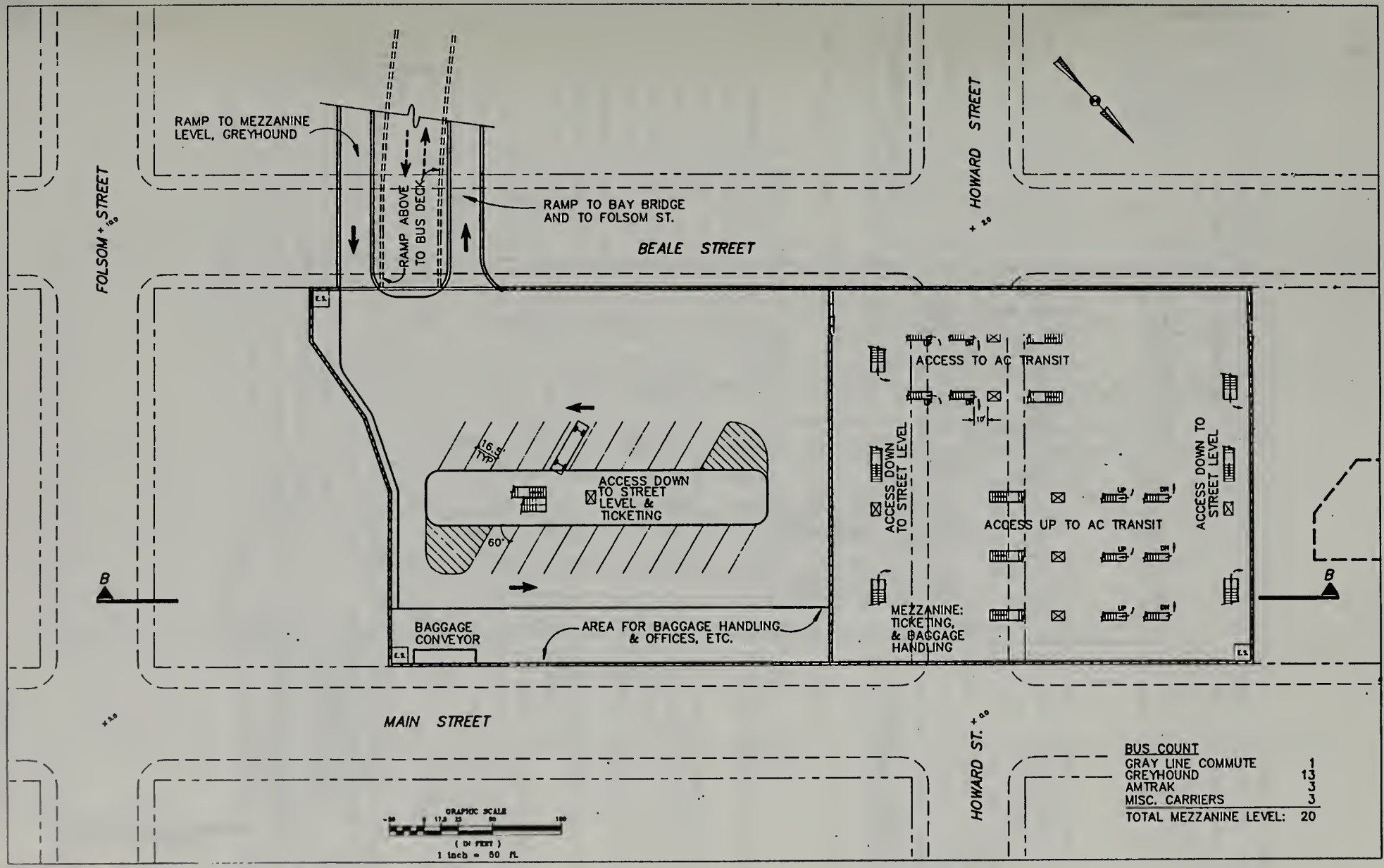

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Figure 18 - Alternative B New Transit Terminal Main/Beale Site, Mezzanine Level Plan

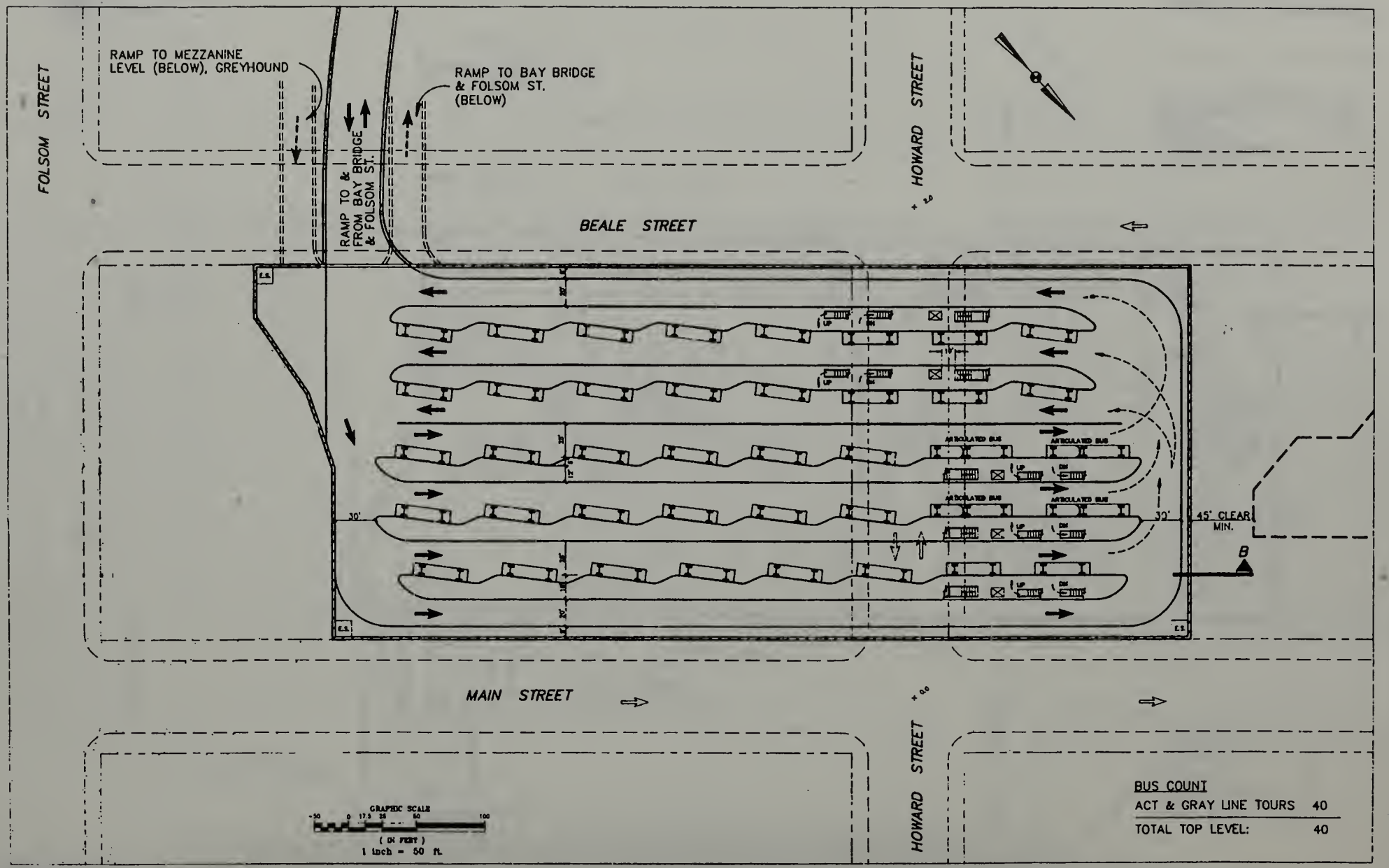

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Figure 19 - Altemative B
New Transit Terminal
Main/Beale Site
Upper Level Plan

An adjacent underground rail station could be accommodated between Natoma and Howard Streets. A single level stub-end terminal could accommodate eight tracks, with six reserved for a Caltrain extension and two reserved for high speed rail service, with a 1000-1400 feet train platform to accommodate 10-car train operation. The location of a potential underground rail station for Alternative B would be same as shown for Alternative A in Figure 12. Pedestrian access for a rail station would be from Howard or from internal stairways, escalators, and elevators from within other portions of the transit terminal (see Figures 20-22).

Two small parcels of privately owned property north of Howard Street and one triangular-shaped private parcel mid-block on Main between Howard and Folsom Streets would be required for Alternative B (see Figure 23). Construction costs would be an estimated $101 million for a new transit terminal (see Appendix B). Joint development potential on the Main/Beale site would likely be limited for Alternative B. Because transit functions would occupy the site at the first three levels, only joint development ventures which can be successful with land uses located above these levels would be viable. Access to an upper level building from Mission Street could be from the transit plaza, use of the vacated right-of-way from the former Main Street freeway ramp, or through the terminal mezzanine level. Alternative B would maximize land use development opportunities on the existing Transbay Transit Terminal site.

The principal features of this new downtown transit terminal would be as follows:

- future bus berthing needs identified in the Transit Needs Study are fully satisfied;
- berths are provided within a terminal to replace existing on-street loading operations by Golden Gate Transit and other operators;
- grade-separated two-way bus ramp access to and from the Bay Bridge and to reach the surface street network from the west side of the new terminal would eliminate the portion of the existing ramp structure located north of Folsom Street between Essex and First Streets;
- accessibility to the BART and MUNI Metro Embarcadero subway station on Market Street is improved by new terminal location;
- excellent pedestrian access is provided by the transit plaza at Mission and Beale Streets and vertically between all levels of the transit terminal through the mezzanine level;
- new terminal location maximizes opportunities for transit priority treatments on Main and Beale Streets while allowing First and Fremont to provide improved auto access to freeway ramps;
- potential underground rail extensions are accommodated in an adjacent, interconnected terminal;
- existing AC Transit midday bus storage needs may be met on-site and projected storage needs might be satisfied by widening the bus access ramp or through midday use of several bus aisles when service demands would be less;
- an interim bus terminal may need to be developed while the existing Terminal was demolished and new construction took place unless the new transit terminal were completed first;
- this alternative forecloses reconstruction of the Main and Beale Street freeway ramps but preserves options for an elevated freeway ramp to the waterfront;
- retention of the extended bus access ramp and development of the Main and Beale site may reduce potential land use development opportunities at this site but allows for development at the existing Transbay Transit Terminal site.

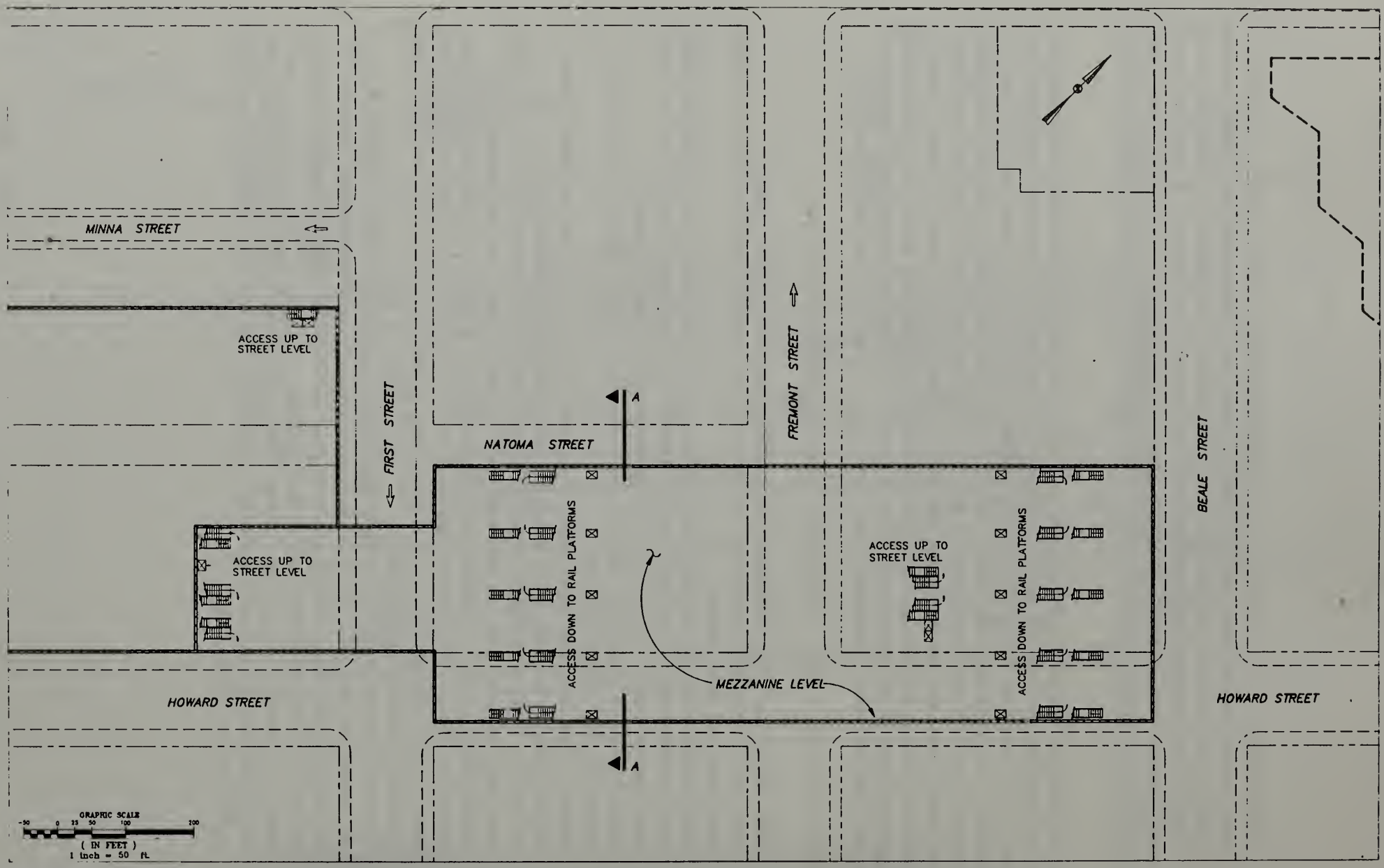

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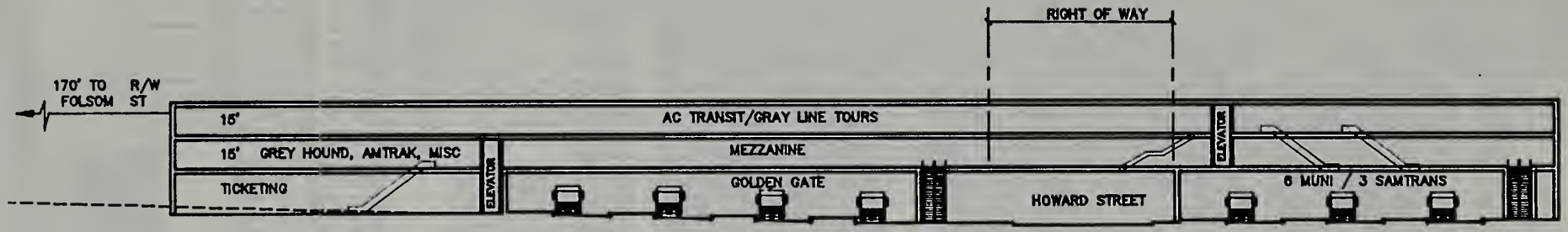
Figure 20 - Alternative B
New Transit Terminal,
Main/Beale Site, Underground
Rail Station, Mezzanine Level



SECTION B-B

Figure 21 - Alternative B
New Transit Terminal,
Main/Beale site
Bus Terminal Section

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TBSEC2

TRANSBAY STUDY

FOR THE CITY OF SAN FRANCISCO, CALIFORNIA

CROSBY HELMICH ARCHITECTS

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Suite 950
San Francisco, CA 94105
Telephone: 415.777.5444

Architects
Planners
Interior Designers

Figure 22 *Alternative B New Transit Terminal, Main/Beale Site Section*

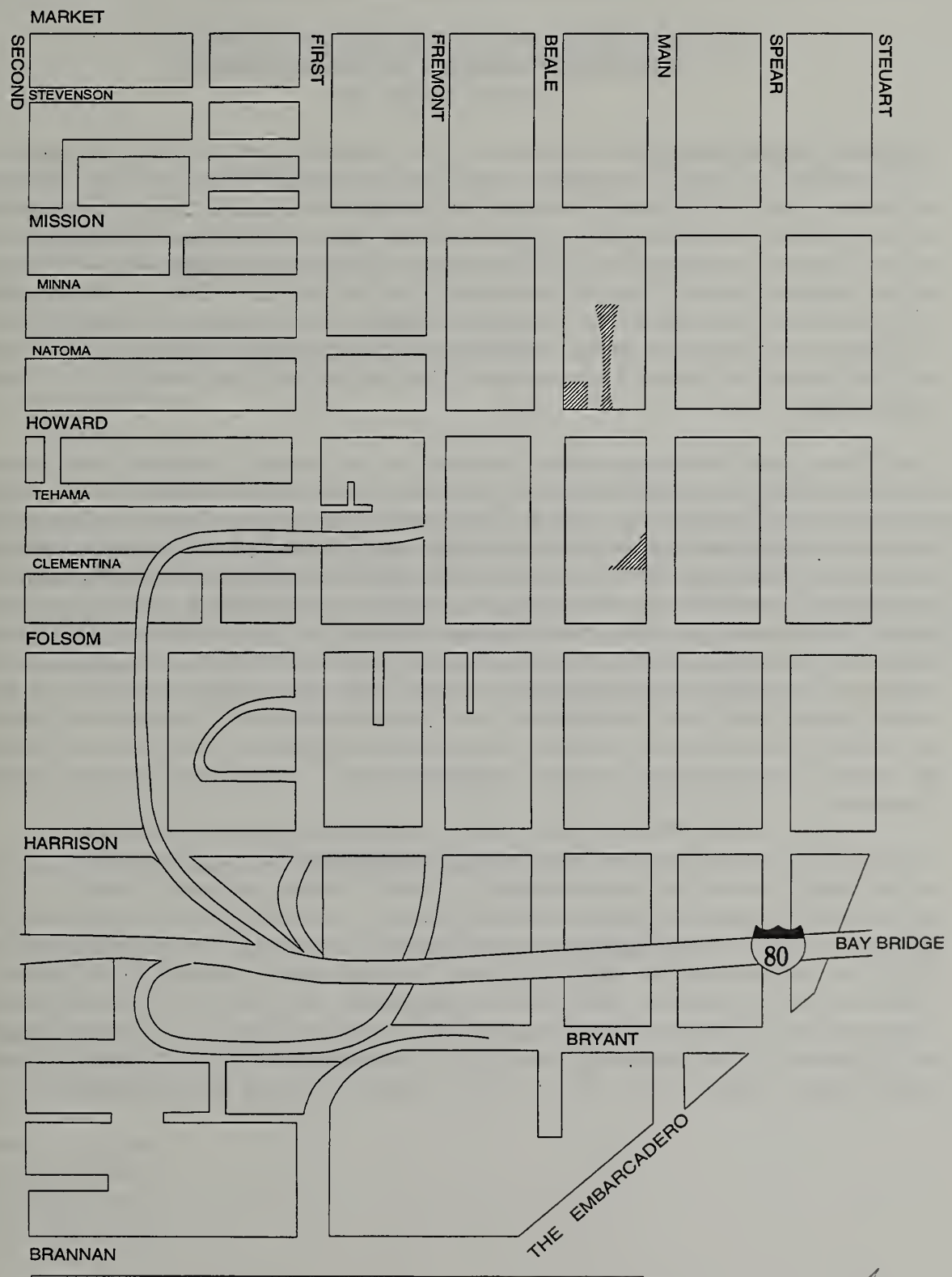

Figure 23
ALTERNATIVE B - NEW TRANSIT TERMINAL
Main/Beale Site
Private Land Acquisition

VI. IMPLEMENTATION SCHEDULE

A. ENVIRONMENTAL REVIEW SCHEDULE

The environmental review process is a major factor in determining a realistic implementation schedule for each alternative for meeting future transit needs. The environmental document for any alternative for a new transit terminal would need to incorporate and be consistent with environmental documents for other projects in downtown San Francisco. The most pertinent project involves the complicated environmental review process now underway for The Mid-Embarcadero Roadway. Depending upon which alternatives for the Terminal Separator Structure are selected by the Mayor and the Board of Supervisors in early 1994, the environmental process for The Mid-Embarcadero Roadway may become further complicated. The addition of an alternative for development of a new transit terminal would need to be accounted for in the technical environmental review analyses for each project and would result in a very complex and lengthy process.

The following tables provide estimates of the amount of time required to complete environmental review for various alternatives for development of a modified or new transit terminal. For Alternative X, it is possible that an EIR might not be necessary. Physical exterior changes to the existing Terminal structure may be relatively minor. The Terminal has architectural merit and has evidently been declared by the State Historic Preservation Officer to appear eligible for National Register listing. The relatively minor modification of Alternative X, while of concern, is unlikely to be considered a significant environmental impact. The substantial increase in bus arrivals and departures (123 percent) that would be accommodated is not likely to lead to significant air quality problems, given future stricter emission standards for transit vehicles and especially considering the more substantial air quality implications of not meeting future transit demand, which could lead to greater use of private automobiles. The increase in passengers per day (131%) is also substantial and could lead to crowded conditions on sidewalks around the Terminal, but would not necessarily be considered a significant effect. Surface streets would be unaffected by Alternative X.

If no federal money were involved, preparation of a negative declaration under CEQA for Alternative X may be possible, which could be accomplished in about 12 months, as shown in Table 6. An appeal of the Preliminary Negative Declaration to the City Planning Commission would take about three additional months to resolve. If federal funds were involved, NEPA review would also be necessary; similar to the CEQA situation, it is possible that an EIS would not be necessary and that a FONSI (Finding of No Significant Impact) could be issued following preparation and public review of an Environmental Assessment (EA). Assuming timely cooperation from all involved agencies, and that these agencies do not require the EA to be particularly extensive, it is possible that a FONSI could be issued in about the same 12 month timeframe required for the CEQA negative declaration for Alternative X.

TABLE 6

NEGATIVE DECLARATION/FONSI SCHEDULE FOR MODIFICATIONS TO EXISTING TERMINAL (ALTERNATIVE X)

Required Step	Time to Complete (Months)
Prepare Draft Preliminary Negative Declaration/ Environmental Assessment	9[3]
Publish Preliminary Negative Declaration/EA	2[3]
Public Review	1
Issue Final Neg Dec (if unappealed)/Issue FONSI	3
[Appeal of Preliminary Negative Declaration/Final Neg Dec]	
TOTAL ELAPSED TIME	12-15

Two different scenarios for development of a new transit terminal are presented in Tables 7 and 8. In Table 7, the environmental review process for development of a new transit terminal in combination with potential development of new land uses (Alternatives A or B) would accommodate federal involvement, an EIS review process, and accounting for The Mid-Embarcadero Roadway Replacement EIR/EIS, which is currently in progress. The approach addressed in this table also assumes that the Terminal Separator Structure Alternatives will affect the Mid-Embarcadero Roadway Replacement EIR/EIS schedule. Alternately, a separate EIR could be prepared for Alternatives A or B for a new transit terminal and potential development of new land uses without federal involvement (see Table 8).

TABLE 7

COMBINED EIR/EIS SCHEDULE FOR A NEW TRANSIT TERMINAL (ALTERNATIVES A AND B)

Required Step	Time to Complete (Months)
Consultant Selection	6[1]
Public Scoping	3[2]
Preliminary Draft EIR Submittal to City	7[3]
Draft EIR Publication	10[3]
Public Review	2
Response to Comments	6-8
Final EIR Certification	.25
Final EIS Publication	.75
Final EIS Review Period	1-2
Record of Decision	1
TOTAL ELAPSED TIME	37-40

TABLE 8

SEPARATE EIR SCHEDULE FOR A NEW TRANSIT TERMINAL (ALTERNATIVES A OR B)

Required Step	Time to Complete (Months)
Consultant Selection	6[1]
Public Scoping	3[4]
Preliminary Draft EIR Submittal to City	6[5]
Draft EIR Publication	8[5]
Public Review	2
Response to Comments/Final EIR Certification	4-6
TOTAL ELAPSED TIME	29-31

NOTES TO ALL ENVIRONMENTAL TIMETABLE TABLES:

1. This estimate presumes that pressure is successfully applied to CalTrans to expedite its review process. Consultant selection which requires CalTrans certification has typically taken up to 9 months for other projects.
2. Based upon the existing schedule for the Mid-Embarcadero Roadway Replacement EIR/EIS, this public scoping is expected to occur February-April, 1994.
3. Time estimates reflect need for coordination with, and joint review of preliminary documents by CalTrans, Federal Highway Administration, Federal Transit Administration, or other federal agencies.
4. Even if a separate environmental document is prepared for a new transit terminal, that document will need to contain information and analysis consistent with the Mid-Embarcadero Roadway Replacement EIR/EIS. Much of the key background information from the Mid-Embarcadero Roadway Replacement project (e.g., transportation, air quality) is not expected to be available until about October 1994.
5. Time estimates reflect need for coordination with, and joint review of preliminary documents by CalTrans.

Timetables for the environmental review process for a modified or new transit terminal are subject to important assumptions which are noted in the footnotes but warrant emphasis. The schedule for a joint EIR/EIS which deals with a new transit terminal and development of new land uses must be consistent with the analysis developed for The Mid-Embarcadero Roadway and Terminal Separator projects, assumes expeditious action by Caltrans during the consultant selection process, and assumes expeditious joint review by Caltrans and relevant federal agencies. The schedule for a separate EIR for a new transit terminal and development of new land uses assumes no federal involvement and expeditious action by Caltrans during the consultant selection, preliminary internal review, and Draft EIR stages of the process. Use of a separate EIR process assumes that no federal money or approvals will be required. If these alternatives do use federal money or require federal approvals, then a joint EIR/EIS would be necessary. If federal agencies were involved, such as use of federal funds for demolition of the existing Terminal or building of a new transit terminal, the requirements of the National Environmental Policy Act (NEPA) would be triggered.

Each table reflects an underlying assumption that once the environmental review process commences, there would be no substantial change to the proposed project, or to other circumstances surrounding the project, which would require that the City redo some analysis that had already been completed. This is an important assumption that can seriously affect the schedule, as has occurred on The Mid-Embarcadero Roadway project.

As shown in the Tables 7 and 8, if environmental review were to begin in December of 1993, a combined EIR/EIS on a new transit terminal and potential development of new land uses for Alternative A or B could be completed by early 1997. A separate EIR which began in December of 1993 for Alternatives A or B for a new transit terminal and potential development of new land uses could be completed by the Summer of 1996.

B. FINANCING OPTIONS

Preliminary construction cost estimates for modification of the existing Transbay Transit Terminal to accommodate future needs total approximately $93 million. The costs of building Alternative A would be affected by the specific land use program and associated structural needs for accommodating uses which would be stacked above the surface/underground new transit terminal. Preliminary construction cost estimates for construction of the Alternative A new transit terminal itself would total $79 million. Preliminary construction cost estimates for the Alternative B new transit terminal at Main/Beale would total $101 million. These are very preliminary estimates which do not include possible costs for property acquisition, hazardous clean-up, legal fees, and various other potential costs (see Appendix B).

No specific financial plan has been developed for any of the alternatives. Five general approaches for funding a modified or new transit terminal could be pursued:

- **Local and regional bonds**. Accommodation of future transit needs is a regional concern and would require concerted regional action. Use of bonds for financing would require successful bond measures in each of the affected counties. This would be difficult to achieve, and passage of bond measures would be difficult in the current economic climate.

- **Local and regional sales taxes**. Many Bay Area counties have local sales tax measures which support transportation improvements. For most counties, including San Francisco, the electorate would have to act to authorize spending funds on a downtown San Francisco transit terminal because the original sales tax measures were generally very specific in limiting spending to identified projects.

- **Regional bridge toll funds**. Use of regional bridge toll funds may be another potential revenue source. It may be possible to reprogram approximately $30 million from bridge tolls which are presently scheduled to be used to address existing Terminal seismic and safety compliance to instead build a new transit terminal. Use of bridge toll revenues may have to compete for funds with use of these revenues for seismic upgrading of the Bay Bridge and expansions of the Carquinez Bridge and Benicia Bridge. Increased tolls would likely be needed in order to fully finance a modified or new terminal.

- **Federal funds**. The federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) greatly expanded local and regional flexibility in the programming of federal funds but did not significantly expand the total amount of funding available. Programming of ISTEA funds at the regional level is already in progress which commits ISTEA funds through mid-1998. San Francisco and the Bay Area have substantial, competitive transportation funding needs. It may be difficult to make federal funds available for a new transit terminal in the foreseeable future

through normal programming mechanisms. One potential federal resource outside the normal programming process may be to seek funding as an ISTEA Demonstration Project.

- **Private funding through joint development.** Creation of sufficiently attractive opportunities for private land use development could be structured to include full or partial financing of a transit terminal. This possibility would be greatest for Alternative A or B because there would more flexibility to design the new transit terminal and private land use development to be mutually beneficial. Private financing could allow more expeditious construction because use of public funds could be avoided or minimized.

Various combinations of financing methods could be utilized. The specific financing methods used would affect the speed with which implementation could proceed. Timing for initiation of the complex and lengthly environmental review process which would be required would be contingent upon development of a reasonable financing strategy.

C. CONSTRUCTION SCHEDULE

The construction schedule itself could be complicated by a variety of factors. The speed with which construction could proceed would depend upon how many pre-construction tasks had been undertaken in anticipation of the environmental review document certification. The following steps would have to take place before the initiation of construction:

- **Land acquisition and assembly.** Alternatives A and B each include some privately-owned property. Acquisition, partnerships, or other arrangements would need to be negotiated to allow projects to proceed. If there were property owners unwilling to sell or negotiate deals and condemnation proceedings were needed, years could be added to the implementation schedules for Alternatives A and B.

- **Financing.** As previously noted, no specific financial plans have been developed for any of the alternatives. Private financing would need to be secured in advance to allow expeditious construction. Approvals in advance would also be needed if public bonds or other funds were used.

- **Construction drawings.** Development of detailed architectural and engineering plans could be expected to require at least ten months. Considerable expense could result if construction drawings are developed early and substantial changes to the project occur subsequently.

- **City approvals.** Six months could be expected beyond the completion of the environmental process for land use entitlements and issuance of site and foundation permits. This assumes that the City Planning Commission grants the land use entitlements in the same week as the completion of the environmental review process. Four of these six months are also assumed for actions by the Board of Supervisors, including potential rezonings or partial vacations of streets. These estimates assume that no appeals or challenges to the project or the building permits are filed. It also assumes that Bureau of Building Inspection reviews preliminary construction documents prior to the project receiving entitlements.

- **Contract bidding.** Competitive bidding, selection of construction contractors, and contract negotiations generally would require several months in the private sector and much longer if conducted according to public sector procedures.

- **Construction.** The time required for construction would be affected by the relative complexity of each project alternative. Alternative A, with a new transit terminal and other land uses stacked above, may be a complicated construction project and would require approximately thirty months. Alternative B is estimated to take twenty-six months to complete construction. Alternative X, which would require major modifications to the existing Terminal, is estimated to take twenty-six months for construction.

The amount of time needed to complete a modified or new transit terminal would depend upon the length of time spent between the end of the environmental review process and the start of construction. It may be possible to overlap many of pre-construction tasks such as land assembly, securing financing, construction drawings, some City approval actions, and contract bidding with the later stages of the environmental review process. If this were done, the earliest that a modified Terminal (Alternative X) could be completed would be in the second half of 1997. Based on the same assumption of overlapping pre-construction tasks with the environmental review process, a new transit terminal for Alternative A or B could be delivered between early 1999 and early 2000 (see Table 9). The specific details of projects can change late in the environmental review process and thus there may be substantial risks and costs associated with this approach. The amount of time between completion of the environmental process and the start of construction would increase for each pre-construction task which was not ready to go immediately following finalization of the environmental document. If none of the pre-construction tasks were undertaken until after finalization of the environmental process, an additional year or more could be required for completing construction.

TABLE 9

SUMMARY OF COSTS AND SCHEDULES FOR EACH TERMINAL ALTERNATIVE

OPTION	PRELIMINARY COST ESTIMATES	ENVIRONMENTAL REVIEW SCHEDULE*	PRE-CONSTRUCTION TASKS**	CONSTRUCTION SCHEDULE	POTENTIAL COMPLETION DATE**
ALT. A	$93 million	12-15 mo.	16 mo.	26 mo.	late 1997
ALT. A	$79 million	29-40 mo.	16 mo.	30 mo.	1999-2000
ALT. B	$101 million	29-40 mo.	16 mo.	26 mo.	1999-2000

* Schedule assumes Negative Declaration/FONSI for Alternative X and an EIR/EIS for Alternatives A and B, with an EIR completed within 29-31 months and a combined EIR/EIS completed within 37-40 months. It is possible that an EIR/EIS may be required for Alternative X. It is also possible, but not likely, that a Negative Declaration/FONSI may be used for Alternatives A or B. The schedules specified would need to be modified accordingly if these differences occurred.

** If pre-construction tasks were initiated to partially overlap with the environmental review process, some of the time required for these tasks would not be sequential. The potential project completion dates specified assume considerable overlap between the environmental review process and some pre-construction tasks. Project completion dates would be extended to the extent that pre-construction tasks were delayed, and the period between the completion of the environmental process and the start of construction was extended.

VII. CONCLUSION - CONSTRAINTS/OPPORTUNITIES

Each of the alternatives examined is able to satisfy future needs for a regional downtown transit terminal. Each of the alternatives for a new transit terminal could involve a complex environmental review process and difficult challenges in political consensus building. Each alternative could potentially affect the range of options for the Terminal Separator Structure, the Transbay Transit Terminal, and/or the Terminal's bus access ramps. For these reasons, Caltrans will play a critical role in determining which alternatives are most viable. Each alternative presents the following relative opportunities and constraints.

Alternative X - Modifications to Existing Transbay Transit Terminal to Meet Future Needs

Opportunities:

- central location near financial and retail districts as well as Moscone/Yerba Buena Center;
- good bus access to Bay Bridge;
- meets most future bus service needs;
- private land acquisition not required to meet future bus service needs;
- possibility of less complicated and less lengthly environmental review process.

Constraints:

- less cost effective than for building a new transit terminal;
- future transit needs not fully satisfied on-site;
- timely cooperation from Caltrans required;
- plan for interim transit facility needed for construction period;
- existing inefficient use of Terminal ground level is not optimized and surrounding area is not enhanced;
- limited joint development potential probably constrains opportunities for private financing.

Alternative A - New Transit Terminal at Transbay Transit Terminal Site

Opportunities:

- central location near financial and retail districts as well as Moscone/Yerba Buena Center;
- good bus access to Bay Bridge;
- meets future transit needs;
- cost effective, especially if combined with joint development;
- on-site opportunities for joint development and private financing are optimized.

Constraints:

- some private land acquisition and assembly required;
- timely cooperation from Caltrans and affected property owners required;
- plan for interim transit facility needed for demolition and construction period;
- new transit terminal may become tied to specific program for private land use development;
- possibly complicated environmental review process.

Alternative B - New Transit Terminal at Main/Beale Site

Opportunities:

- central location near financial and retail districts as well as Moscone/Yerba Buena Center;
- good bus access to Bay Bridge;
- improves accessibility and connectivity to BART and MUNI Metro at Embarcadero Station;
- reduces traffic conflicts by moving transit circulation away from First and Fremont Streets;
- meets future transit needs;
- cost effective, especially if linked to development of new land uses at existing Transbay Transit Terminal site;
- existing Transbay Transit Terminal would become available for new land uses with potential linkages to private financing.

Constraints:

- minor private land acquisition and assembly required;
- timely cooperation from Caltrans and affected property owners required;
- plan for interim transit facility may be needed for demolition and construction period unless new terminal were completed prior to demolition of existing Terminal;
- use of Main/Beale site for transit terminal would foreclose some Terminal Separator Structure options;
- new transit terminal may have limited opportunities for joint development on the Main/Beale site;
- possibly complicated environmental review process.

A key factor in evaluating alternatives is identification of factors which may facilitate or complicate implementation. Any alternatives for a new transit terminal and its land use development program would also have to be accounted for in the environmental process for The Mid-Embarcadero Roadway and Terminal Separator Structure, and the environmental review schedules for Alternatives A and B would be affected by these projects. Alternative X may be less complicated if a Negative Declaration or FONSI were appropriate but would be less cost effective and probably more difficult to finance.

The linkages and potential complications would be somewhat greater for Alternative B which sites a new transit terminal on the former Main and Beale ramps of the TSS right-of-way and would preclude TSS alternatives which would restore this ramp but would be compatible with TSS alternatives which have a ramp connection to The Embarcadero Roadway. Timely decisions by the City to narrow the range of TSS alternatives and to eliminate TSS alternatives with the Main and Beale ramps would be needed to allow Alternative B to be accomplished.

Alternatives A and B, which include development of a new transit terminal and use of the existing Transbay Transit Terminal site for potential new land uses, present other complications. Demolition and replacement of the Terminal may become a complex process. Caltrans, which owns and operates the Terminal and its bus ramps, the Metropolitan Transportation Commission, regional transit operators, Greyhound, and other users of the existing Terminal would all have to be involved. Development of a new transit terminal would be contingent upon expeditious action regarding a specific land use development program and potential joint development financing.

Minimizing the use of privately-owned property has been an important criteria in the development of Alternatives A and B, but some property acquisition would be required. A limited number of property owners would be affected and appropriate accommodations would need to be worked out with these owners to allow either of these alternatives to be developed.

VIII. NEXT STEPS

This report has identified a number of viable alternatives for meeting future needs for transit service. Each alternative presents opportunities and constraints which will need to be assessed by the Mayor and other decision-makers.

The initial step is an assessment by the Mayor of alternatives that should be further investigated. As the principal property owner for each alternative, involvement and action by Caltrans at the state and regional level is critical. Consultation and negotiation with affected private property owners are also essential. Coordination will be necessary with the Metropolitan Transportation Commission (MTC), Caltrans, and regional transit operators for potential programming of a new terminal into the 1994 update of the Regional Transportation Plan. Coordination will also be needed with MTC, the State, and potential investors in downtown rail services. A reasonably accurate assessment of the potential for delays due to political controversy needs to be addressed upfront by involving all interested parties as soon as possible.

More detailed investigation and political consensus building needs to occur over the next period once initial screening takes place. A financial plan and strategy will need to be developed for each component of the selected program. A detailed plan for operating an interim transit facility during the construction period for each alternative will need to be developed. The potential effects of a new transit terminal and and potential new land uses on the implementation schedules for other projects will need to be assessed. The environmental review process for The Mid-Embarcadero and Terminal Separator Structure may need to be modified to account for the selected land use program. A realistic timetable for completing an environmental process for a terminal will need to be developed to allow construction within a reasonable time period.

IX. STAFF RECOMMENDATIONS

Alternative B is preferred from a land use perspective if there is some scheduling flexibility, adequate funding becomes available, and potential complications to development of a comprehensive solution can be dealt with. Alternative B provides the most optimal design for a new transit terminal with a terminal at Main and Beale Streets which meets virtually all of the criteria of the Transit Needs Study, improves overall transit accessibility, improves traffic circulation in the area, and would be cost effective to build. However, Alternative B has possible obstacles to implementation, including potential impacts upon the schedules for the Terminal Separator Structure and The Mid-Embarcadero projects.

Based on evaluation of the relative merits of each alternative site and factoring in implementation considerations, preliminary evaluation indicates the following ranking of alternatives for meeting future transit needs:

- Alternative B, which sites a new transit terminal at Main/Beale and creates opportunities for new development at the existing Transbay Transit Terminal site, has excellent potential but possible obstacles to implementation. Alternative B provides greater flexibility in site design, is closer to the Embarcadero BART/MUNI Metro Station, and reduces potential conflicts between autos and transit. Alternative B may be complicated because establishing a new transit terminal in the Main/Beale right-of-way would preclude TSS alternatives which include restoration of these ramps and because some private property would be affected.

- Alternative A, which would build a new transit terminal with potential other land uses stacked above at the existing Transbay Transit Terminal site, has excellent potential but possible obstacles to implementation. Alternative A addresses transit needs in combination with creating opportunities for development of other land uses, its central location is close to downtown and Moscone Center, and it would not be contingent upon any specific TSS alternative. Implementation of Alternative A may be complicated because development of a new transit terminal and a program for other land uses above could become intertwined and because some private property would be affected.

- Alternative X, which revamps the existing Transbay Transit Terminal to meet future service needs, is least desirable. It may be physically possible to reconfigure the existing bus platform to meet future bus service needs. Alternative X would be less cost effective than building a new terminal, and terminal operations would have to be relocated during construction. Joint development and associated potential for private financing would probably be very limited.

X. CREDITS

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APPENDIX A

TECHNICAL ANALYSES OF TRANSIT TERMINAL ALTERNATIVES

Prepared by:

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Alternative 1 - Expand the Existing Terminal Building To Mission Street

Project Description

This alternative would require the expansion of the existing Transbay Terminal Building to Mission Street for long-haul bus services. In order to accomplish this concept, the following modifications are necessary:

- Major reconfiguration of the existing bus deck, including platforms, circulation aisles, and vertical circulation elements (stairways and ramps), in order to increase the number of bus loading platforms in the existing building from 39 to 53. Additional 16 platforms can be provided in the expanded area. The expanded terminal will be at a different elevation level (6-8 feet higher) from the main terminal. This change is needed because the elevation difference between the existing bus deck level and the street level is only 20 feet, while the total clearance need is at least 28 feet (a minimum 15' clearance for MUNI overhead trolley operation, a minimum 8' clearance for the mezzanine level, and 2 1/2' depth for beam structures for each deck). In order to meet the clearance needs above and to provide an access ramp to the expanded terminal, the MUNI/SamTrans loading areas have to be depressed by 2 feet, the expanded terminal area will have to be 6-8 feet higher than the existing bus deck.

- The expanded terminal will be used by the long haul operators and would include a mezzanine level for platform access.

Advantages and Disadvantages

The advantages of this alternative are:

- No major modifications to the existing access and egress ramps are necessary.

- Some temporary bus layover will continue to be possible on the access and egress ramps.

- Ground access to an off-site mid-day bus storage facility can be accommodated.

- This alternative would not preclude the proposed I-80/U.S.-101 southbound ramp connection at Harrison Street.

This alternative would have the following disadvantages:

- Not all future program needs (82 platforms) can be accommodated off-street. A total of 78 spaces can be accommodated, including 9 MUNI/SamTrans spaces under the expanded terminal. Four spaces will have to be accommodated on the street.

- This alternative would require a major reconfiguration of the entire bus deck in order to accommodate AC Transit bus platform needs. During the period of the reconstruction, transit services will have to be relocated to another location.

- The reconstructed terminal would require expansion of the existing terminal building envelope.

- The two buildings north of the existing access ramp have to be demolished in order to provide an access ramp to the expanded terminal. In addition, the egress ramp would require Minna Street air rights in order to be connected to the main egress ramps from the terminal.

Alternative 2 - Double Deck The Existing Terminal

Project description

This alternative would require the construction of a second bus deck on top of the existing bus deck on the upper floor of the Transbay building. This configuration would require an additional set of ramps, both inbound and outbound, to access the upper deck. In addition, a two-way ground access ramp would need to be provided from both bus decks in order to access off-site mid-day bus storage facilities.

This alternative would provide functional separation of bus carriers. AC transit would be relocated to the upper deck. Other bus operators, especially Greyhounds, would remain on the lower deck in order to minimize vertical circulation by Greyhounds patrons with luggage and to allow for continued use of the existing Greyhound ticketing and waiting areas.

Advantages and Disadvantages

This alternative would have the following advantages:

- The existing stairways and ramps connecting from the mezzanine level to the bus platform level do not have to be changed.
- These two decks could accommodate 79 bus stops to meet the needs of all other carriers inside the terminal, except MUNI and SamTrans. MUNI and SamTrans would continue to use the front of the building for access.
- There would potentially be little disruption to the existing bus services when constructing the second deck.

This alternative would have the following disadvantages:

- It would not be possible to construct a ramp connecting from the upper deck to the local street system for exiting buses without property acquisitions and major reconstruction of the existing terminal access/egress ramps. It would be possible to allow buses to access the second deck from the street level.
- It would preclude the proposed I-80/U.S. 101 southbound on-ramp at Harrison Street, if the existing Second Street ramp is needed for ingress from local street system. Otherwise, more property takings and reconstruction of the existing terminal access/egress ramps than what described above would be required.

Alternative 3 (Alternative X)
Reconfigure/Widen the Existing Transbay Terminal Platform and Ramps

Project Description

This alternative would not change the building shell of the existing transbay terminal building. It would require a major reconfiguration of the existing bus deck, including platforms, circulation aisles, and vertical circulation elements (stairways and ramps) as well as widening of the access and egress ramps. With the above modifications, this alternative could accommodate 66 bus platforms on the bus deck. MUNI and SamTrans buses would continue to use the existing loading areas (9 platforms) in front of the terminal building. Some bus carriers (7 platforms) would have to use on-street spaces for loading. In addition, access from the terminal to the local street system can be constructed.

Advantages and Disadvantages

The advantages of this alternative are:

- o No change of the existing terminal building shell is needed, except for the mandated seismic upgrade.
- o Ground access to an off-site mid-day bus storage facility can be accommodated.
- o This alternative would not preclude the proposed I-80/U.S.-101 southbound ramp.

This alternative would have the following disadvantages:

- o This alternative would not fully accommodate the projected program requirements (82 bus platforms) off-street. Seven bus loading spaces will have to be accommodated on the street.
- o This alternative would require a major reconfiguration of the entire bus deck in order to increase the number of bus platforms within the existing deck. During the period of the reconstruction, transit services will have to be relocated to another location.
- o The reconstructed bus deck level would lengthen the existing platforms and walk distances to the end of the platforms. There would be about 120 feet distance of bus loading further outside of the weather protected zone provided by the main terminal building.

Alternative A - New Terminal at the Existing Transbay Terminal Site

Project description

The design for the new Transbay Terminal at this site will include the following features:

- An underground bus terminal located on the block bounded by Mission, First, Natoma, and Beale Streets for AC Transit, Amtrak, Gray Line Sacramento Commute service, and Caltrans Bike Shuttle, Amador/Mike Lee & Betty's, and Gray Line tour buses that will share the use of AC Transit bus bays.

- A street level facility located directly under other land uses on the block bounded by Mission, First, Howard, and Fremont Streets for MUNI, SamTrans, and Golden Gate Transit buses.

- A street level facility located directly on the southeast corner of the block bounded by Minna, Second, Howard, and First Streets for Greyhound and other intercity buses.

- An underground Caltrain and high speed rail terminal on the blocks bounded by Natoma, First, Howard and Beale Streets.

Underground AC Transit Terminal

This terminal will have a total of 7 bus platforms and 44 bus bays. This is sufficient to accommodate the future needs of AC Transit (40 bus bays), Amtrak (3 bus bays) and Gray Line Sacramento Commuter (1 bus bay) service. Caltrans Bike Shuttle, Amador/Mike Lee & Betty's, and Gray Line tour buses will share the AC Transit bus bays. A portion of AC Transit day time bus storage could be accommodated in this terminal, using the bus aisles and bus bays that will not be occupied during the day. Additional bus storage facilities will have to be provided off site at a location to be selected by the City. Potential bus storage facilities would most likely be in the South-of-Market area.

Bus access

Bus access to this terminal will be provided by an exclusive bus ramp directly connected with the Bay Bridge. The portion of the existing Transbay bus ramp south of Howard Street will be preserved. A new two-way connecting ramp will be constructed that will connect to the existing bus ramp near Clementina Street, with a 6.5% to 7% descending grade toward Natoma Street. The new connecting ramp will then turn eastward, paralleling the south side of Minna Street right-of-way to pass underneath First Street. Natoma street will be realigned to Howard Street.

Recognizing the fact that some AC Transit buses will be stored in a South of Market location, a connection from this terminal to the local street system will have to be preserved. There are two potential possibilities:

- Under the existing conditions, these buses could use the existing Second Street

bus ramp to access the local street system from the elevated bus ramp.

- o If the Second Street connection were to be precluded by the proposed southbound ramp to I-80/U.S.-101 at Harrison Street, a new two-way ramp could be constructed that will connect the terminal to the local roadway system at Howard Street, between Main and Beale Streets.

Pedestrian Access

Pedestrian access to this terminal will be provided on the ground floor, on the block bounded by Mission, Fremont, Howard, and Beale Streets. The ground floor on this block will include several major entryways to both the underground terminal and other uses above. AC Transit ticketing, information and other ancillary facilities will also be provided on the ground floor. A set of stairways, escalators and elevators will be provided from the ground floor lobby to each bus platform below.

Intermodal Transfers

Passenger transfers between transit operators would mostly be made using surface streets.

MUNI/SamTrans/Golden Gate Transit Terminal

This site will have a total of 6 bus platforms and 22 bus bays. This will be sufficient to accommodate the future needs of MUNI (6 bus bays), SamTrans (3 bus bays), and Golden Gate Transit (13 bus bays) services. The proposed MUNI bus bays could be modified to accommodate potential light rail service from Geary and/or Third Streets.

There will be no day time bus storage accommodated for Golden Gate Transit on this site. Bus storage for Golden Gate Transit will be provided at its current location on the block bounded by Folsom, Beale, Harrison, and Main Streets. If this site became unavailable, a new site in the South-of-Market area will have to be identified by Golden Gate Transit.

Bus access

MUNI and SamTrans bus access to/from this site will be essentially the same as the current conditions. Golden Gate Financial District bound buses will access to/from this site using the similar route as MUNI buses (inbound from First Street and outbound to Fremont Street). Golden Gate Civic Center bound buses will use Folsom and Fremont Streets to access the Terminal and exit to Howard Street.

Pedestrian Access

Pedestrian access to this terminal will be provided at Mission Street between First and Fremont Streets and at Howard Street between First and Fremont Streets. Pedestrian crosswalks will be provided within the terminal from the entryways to each of the bus platforms.

Intermodal Transfers

Passenger transfers between other transit operators would be made from surface streets.

Greyhound/Other Long Haul Transit Terminal

This site will have a total of 20 bus bays and approximately 35,000 square feet of ground floor space for ticketing, information, and other ancillary spaces as required by these bus carriers. The 20 bus bays will accommodate the future service needs of Greyhound (13 bus bays), Green Tortoise (1 bus bay), Silver Star (1 bus bay), and Falcon (1 bus Bay).

Bus access

Buses will access this terminal from Howard Street and exit to First Street, with a counter-clockwise back-up operation as required by Greyhound.

Pedestrian Access

Pedestrian access to this terminal will be provided at the west side of First Street near Minna Street.

Auto/Taxi Access

Auto and Taxi drop off and pick up activities will be provided on Howard Street.

Intermodal Transfers

Passenger transfers between bus carriers would be made from surface streets. Transfers between this terminal and Caltrain/high speed rail terminal could be made by using a set of internal stairways on the ground floor on the same block.

CalTrain/High Speed Rail Terminal

This terminal will be located 55 feet below the grade level. The terminal will have 8 tracks to accommodate the future needs of the proposed Caltrain extension (6 tracks) and a high speed rail service (2 tracks). The terminal will be a stub-end terminal with a 1000 foot train platform to accommodate Caltrain 10-car train operation. A potential 1400-foot platform design for the high speed rail service is preserved. Two set of stairways, escalators, and elevators will be provided for each platform to the mezzanine level above. The mezzanine level will be about 25 feet below grade level, with pedestrian access from First and Beale Streets.

A train terminal building (approximately 41,000 square feet) will be constructed under potential new land uses, with full service information, ticketing, baggaging and other ancillary office facilities. The terminal will have internal stairways, escalators, and elevators to access the mezzanine level.

Auto/Taxi Access

Auto and Taxi drop off and pick up activities will be provided on Howard Street.

Pedestrian Access

Pedestrian access to the terminal will be primarily made from the terminal on Howard Street. Caltrain riders could also access the terminal using a set of internal stairways, escalators, and elevators from the corner of Howard and Beale Streets.

Intermodal Transfers

Passenger transfers between transit carriers will be made through the mezzanine level. A set of stairways, escalators, and elevators are provided in the terminal building.

Alternative B - New Terminal at the Main/Beale Site

Project description

The design of the new Transbay Terminal building will include the following features:

- An above ground bus terminal on the blocks bounded by Mission, Beale, Folsom, and Main Streets for AC Transit, and Caltrans Bike Shuttle, Amador/Mike Lee & Betty's, and Gray Line tour buses that will share the use of AC Transit bus bays.
- MUNI and SamTrans buses will be located on the portion of the terminal building ground floor north of Howard Street.
- Golden Gate buses will be located on the portion of the terminal ground floor south of Howard Street.
- Greyhound, Amtrak, Gray Line Sacramento Commute service, and other intercity transit buses will be located on the mezzanine level of the terminal, with connections to an exclusive bus ramp to the Bay Bridge and local street connections. Greyhound ticketing, baggaging, and ancillary office facilities will be located on the ground underneath the Greyhound bus bays.
- An underground Caltrain and high speed rail terminal on the blocks bounded by Natoma, First, Howard and Beale Streets.
- Reconstruction of the existing Transbay inbound ramp to provide two-way access to the new terminal at both mezzanine and second levels.
- Reconstruction of the existing bus/Fremont Street off ramp between the Bay Bridge and Folsom Street to allow for an addition of a bus/truck ramp connection to the local street system from the bus ramp.

Above ground AC Transit Terminal

The AC Transit terminal will be located on the second level of the building, bounded by Mission, Beale, Folsom, and Main Streets. This terminal will have a total of 5 bus platforms and 40 bus bays. This will be sufficient to accommodate the future needs of AC Transit (40 bus bays) service. Caltrans Bike Shuttle, Amador/Mike Lee & Betty's, and Gray Line tour buses will share the AC Transit bus bays. A portion of AC Transit day time bus storage could be accommodated in this terminal, using the bus aisles and bus bays that will not be occupied during the day. Additional bus storage facilities will have to be provided off site at a location to be selected. Potential bus storage facilities would most likely be in the South-of-Market area.

Bus access

Bus access to this terminal will be provided by an exclusive bus ramp directly connected with the Bay Bridge. A portion of the existing Transbay bus ramp west of Fremont Street would be preserved. The existing inbound bus ramp east of Fremont Street will be

reconstructed to connect to the new bus terminal.

Recognizing the fact that some AC Transit buses will be stored in a South-of-Market location, a connection from this terminal to the local street system will have to be preserved. There are two potential possibilities:

- Under the existing conditions, these buses could use the existing Second Street bus ramp to access the local street system from the elevated bus ramp.

- If the Second Street connection were to be precluded by the proposed southbound ramp to I-80/U.S.-101 at Harrison Street, a new two-way ramp could be constructed that will connect the terminal to the local roadway system at Folsom Street opposite Essex Street. This new ramp connection would require reconstruction of the existing bus/Fremont Street ramp between Folsom and First Streets.

Pedestrian Access

Pedestrian access to this terminal will be provided from the mezzanine level of the building. The mezzanine level can be accessed from Mission and Beale Street intersection, using the vacated Beale Street ramp right-of-way. The mezzanine can also be accessed from the south side of Howard Street. The mezzanine level will include AC Transit ticketing, information and other ancillary facilities. A set of stairways, escalators and elevators will be provided from the mezzanine level to each bus platform above.

Intermodal Transfers

Passenger transfers between transit carriers will be made via the mezzanine level.

Greyhound and Other Intercity Transit Terminal

Greyhound and other intercity bus carriers will be located on the mezzanine level, directly beneath the AC Transit bus deck. A total of 20 bus bays could be accommodated. The 20 bus bays will be sufficient to accommodate the future service needs of Greyhound (13 bus bays), Gray Line Sacramento Commute (1 bus bay), Green Tortoise (1 bus bay), Silver Star (1 bus bay), Falcon (1 bus Bay), and Amtrak (3 bus bays) services. Greyhound ticketing, information, and other ancillary spaces will be provided on the ground floor directly underneath the mezzanine level. The northern portion of the mezzanine level will include ticking, and necessary ancillary spaces as well as stairways, escalators, and elevators for AC Transit.

Bus Access

Bus access to the mezzanine level will be provided by an exclusive ramp directly connected with the Bay Bridge. The ramp segment west of Fremont Street will essentially be the same as the bus ramp connecting to the AC Terminal. East of Fremont Street, the two-way bus ramp will split into two levels, with the lower level ramp connecting to the Terminal mezzanine level and the upper level ramp connecting to the AC Transit terminal. Access to the local street system will be the same as for AC Transit buses.

Pedestrian Access

Pedestrian access to this terminal will primarily be provided from the ground level at Howard Street. Approximately 35,000 square feet floor area would be provided directly under the bus bays for ticketing, baggaging, internal access, and ancillary facilities.

Auto/Taxi Access

Auto and Taxi drop off and pick up activities will be provided off Main and Beale Streets and at Howard Street.

Intermodal Transfers

Passenger transfers between transit carriers will be made via the mezzanine level stairways, escalators, and elevators.

MUNI/SamTrans Terminal

A MUNI/SamTrans Terminal will be located on the portion of the ground floor of the building north of Howard Street. This terminal will have a total of 3 east/west direction bus platforms and 9 bus stops to accommodate the future needs of MUNI (6 bus bays) and SamTrans (3 bus bays).

Bus access

This terminal location will require extension of existing MUNI Transbay Terminal bound buses from First/Fremont Streets to Beale/Main Streets. Inbound buses (MUNI and SamTrans) will access the terminal from Beale Street and exit to Main Street. The proposed MUNI bus bays could be modified to accommodate a potential light rail service from Geary and Third Streets.

Pedestrian Access

Pedestrian access to this terminal would be made from Mission, Beale and Howard Streets. The vacated Beale Street ramp right-of-way will be redesigned to become the grand entrance to the terminal ground and mezzanine levels. Pedestrian crosswalks will be provided within the terminal from the entryways to each of the bus platform.

Intermodal Transfers

Passenger transfers to AC Transit, Greyhound, and other intercity bus carriers would be made from the mezzanine level. Transfers to Golden Gate Transit and Caltrain/high speed rail would be made via surface street crosswalks.

Golden Gate Transit Terminal

This terminal will include four east/west oriented bus platforms with a total of 16 bus bays for Golden Gate Transit. This is 3 spaces more than the needs of Golden Gate Transit. The southern half of the building will include approximately 35,000 square feet of ground floor space

for ticketing, information, and other ancillary spaces for Greyhound.

Bus access

This terminal location will require Golden Gate Transit to reroute its bus service south of Market Street.

Golden Gate buses will access the site from Beale Street southbound and exit the site to Main Street northbound. This design would require rerouting Civic Center bound buses to access the new terminal from Beale Street.

Pedestrian Access

Pedestrian access to this terminal will be provided at the south side of Howard Street between Beale and Main Streets. Pedestrian crosswalks will be provided within the terminal from the entryways to each of the bus platforms.

Intermodal Transfers

Passenger transfers from this site to AC Transit buses, and Greyhound and other intercity transit buses would be made from the mezzanine level above. Passenger transfer to the MUNI/SamTrans buses and Caltrain/high speed rail would mostly be made from surface street crossings.

CalTrain/High Speed Rail Terminal

This terminal will be located below grade level. The terminal will have 8 tracks to accommodate the future needs of the proposed Caltrain extension (6 tracks) and a high speed rail service (2 tracks). The terminal will be a stub-end terminal with a 1000 foot train platform to accommodate Caltrain 10-car train operation. A potential 1400-foot platform design for the high speed rail service is preserved. Two sets of stairways, escalators, and elevators will be provided for each platform to the mezzanine level above. The mezzanine level will be provided at about 20 feet below grade level, with pedestrian access from First and Fremont Streets.

A train terminal building (approximately 41,000 square feet) will be constructed under potential new land uses, with full service information, ticketing, baggaging and other ancillary office facilities. The terminal will have internal stairways, escalators, and elevators to access the mezzanine level.

Auto/Taxi Access

Auto and Taxi drop off and pick up activities will be provided on Howard Street.

Pedestrian Access

Pedestrian access to the terminal will be primarily made from the terminal on Howard Street. Caltrain riders could also access the terminal from a set of internal stairways, escalators, and elevators from the corner of Howard and Beale Streets.

Intermodal Transfers

Passenger transfers between transit carriers will be made through the mezzanine level. A set of stairways, escalators, and elevators are provided in the terminal building as well as at the eastern end of the mezzanine level.

Opportunities and Constraints

This section presents opportunities and constraints of both sites.

New Terminal at the Existing Transbay Terminal Site (Alternative A)

Opportunities

1. It provides an opportunity to expand the Transbay Terminal to meet the future needs of the transit carriers on the same site. The new terminal will have twice as many bus bays as the existing terminal. It will also accommodate the proposed Caltrain extension and high speed rail facility.

2. The new terminal would be designed to meet current terminal design standards and Building Codes.

3. It allows for a joint development opportunity above both the new transit terminal and Greyhound terminal and provides excellent transit accessibility to these land uses.

4. The proposed bus terminal will not preclude any of the Terminal Separator ramp options.

5. Underground parking garage could be constructed on the southeast section of the block bounded by First, Howard, Second, and Mission Streets. The garage access could be provided from Howard Street.

6. The extent of elevated bus ramps will be significantly reduced in the South-of-Market area.

Constraints

1. The project site is not large enough to meet the entire program requirements and some property acquisition will be required.

2. The exclusive bus ramp connection between the underground bus terminal and the freeway structures will have to provide sufficient clearance at Howard Street. In order to maintain the clearance at Howard Street, to provide reasonable ramp grades, and to descend underneath First Street, this ramp will encroach upon the Natoma Street right-of-way. Natoma Street will be rerouted to Howard Street west of the bus ramp. The portion of Natoma Street east of the bus ramp will be closed.

3. The project site is not large enough to accommodate all bus carriers on one site. However, based on the principal that each transit carrier will have to be accommodated on the same site and to the extent possible, that the transit carriers that have similar access requirements should be accommodated on the same site, the Transbay Terminal at this location will be located on two different sites on two different levels. This design would require transfers between certain transit carriers to be accommodated by at-grade pedestrian crosswalks.

   AC Transit, Amtrak and Gray Line Sacramento Commute Service will be located on the

underground space bounded by Mission, First, Natoma, and Beale Streets with MUNI, SamTrans, and Golden Gate buses directly above. The Greyhound and other inter-city bus carriers will be located on the block west of First Street. This design will allow AC Transit, Amtrak, and Gray Line buses to have direct access to the Bay Bridge. All other bus carriers that require freeway access will use local streets.

4. The bus ramp will be approximately 25 feet below grade under First Street. In order to provide a sufficient number of bus bays for AC Transit, Amtrak, and Gray Line Sacramento Commuter Service, no mezzanine space can be provided between ground level and the underground bus terminal. Ticketing, information and other ancillary space for this terminal will have to be provided at the ground floor.

5. Pedestrian access to the bus terminals will be provided on three different blocks. Access to the underground AC Transit and Gray Line Sacramento Commute buses will be from the block east of Fremont Street. Access to the MUNI, SamTrans, and Golden Gate Transit buses will be from the block between Fremont and First Streets. Access to Greyhound, other Long Haul buses, and underground Caltrain and high speed rail trains will be from the block on the west side of First Street. Some intermodal transfers can not be accommodated via internal pedestrian connections. Pedestrians will have to cross the streets to make transfers, i.e., to transfer from AC Transit to MUNI a rider will have to cross Fremont Street. As a result, there will be a marginal increase in pedestrian traffic in the project vicinity.

6. The project site is not large enough to accommodate the full needs of day time bus storage on site. A percentage of AC Transit bus storage could be accommodated on site, using the bus aisles and bays that will not be utilized during the mid-day. Additional bus storage facilities will have to be provided in an off site location.

7. A local street connection will have to be provided from the underground AC Transit terminal to allow AC Transit buses to access the off-site day time storage facility. This connection is proposed to be made via a bus ramp to Howard Street between Main and Beale Streets.

8. The underground bus terminal would require a ventilation system to ventilate the exhaust fume from buses. Further investigation will be needed regarding the size of the mechanical and duct space needed for the ventilation system.

10. If there was joint development of the site, the amount of time required to construct a new transit terminal would be longer than for the Main/Beale site.

New Terminal at the Main/Beale Site (Alternative B)

Opportunities

1. It provides an opportunity to expand the Transbay Terminal to meet the future needs of the transit carriers on the same site. The new terminal will have twice as many bus bays as the existing terminal. It would also accommodate the proposed Caltrain extension and a high speed rail facility.

2. The new terminal would be designed to meet current terminal design standards and Building Codes.

3. It permits the new transit terminal and development of new land uses at the existing Terminal site to start construction at the same time or the new terminal to be built first.

4. The proposed bus terminal site will be closer to BART/MUNI Metro Embarcadero station and to the Ferry Terminal, than the existing site.

5. All bus carriers will be accommodated in a single building structure and the majority of passenger transfers between bus carriers could be accommodated entirely within the building. Pedestrian and vehicular conflicts will be significantly reduced.

6. A portion of the existing bus ramp (between the Bay Bridge and Fremont Street) can be utilized. New connections will be constructed between the existing ramp and the Bus Deck and Mezzanine levels of the new Terminal.

7. The space previously occupied by the vacated Beale Street ramp could be designed as a grand pedestrian entrance to the new terminal.

8. The construction of the terminal may not need additional property taking as does the existing transbay terminal site. However, it may require land exchange. (see Constraint #6 below)

9. No street closures are required as the result of the terminal location.

Constraints

1. The project site will preclude replacement of the Main/Beale ramps and may require some modification to the proposed direct ramp connection from the freeway structure to the Embarcadero Roadway.

2. In order to provide the required number of bus bays, at street level, bus aisles will have to be oriented in the east/west direction. This arrangement would potentially cause conflicts between pedestrians and bus movements at bus entry and exiting locations.

3. In order to preserve the option for an elevated Terminal Separator Structure link to the Embarcadero, the bus terminal site will be reduced by 42,000 square feet. As a result, the upper bus deck can only accommodate the needs of AC Transit and Gray Line tour

buses. Greyhound, Gray Line Sacramento Commute, and other intercity buses will have to be located on the mezzanine level.

4. The project site is not large enough to accommodate the full needs of day time bus storage on site. A percentage of AC Transit bus storage could be accommodated on site, using the bus aisles and bays that will not be utilized during the mid-day. Additional bus storage facilities will have to be provided at an off site location.

5. A local street connection will have to be provided from the terminal to allow AC Transit buses to access the off-site day time storage facility and other bus carriers to access the local street system and US 101 southbound. A local street connection could be made from the bus ramp to Folsom Street. It requires modification to the existing bus ramp between Folsom Street and First Street.

6. The parcel north of Howard Street is partially owned by private property owners and partially owned by the State of California (through ownership of the Main/Beale ramps). In order to accommodate the terminal building north of Howard Street, land exchange with the private property owner will be required. In addition, it would also require relocation of the surface parking and loading dock access for the office building between Mission, Beale, Howard, and Main Streets.

Transit Program Assumptions

The transit program requirement for this study is based on the October 1993 Staff Working Paper of the "*Transbay Transit Terminal Current and Future Transit Needs Study*", prepared by the Metropolitan Transportation Commission (MTC) and the California Department of Transportation (Caltrans) District 4. This report was prepared with participation of the staffs from MTC, Caltrans, AC Transit, MUNI, GGBHTD, SamTrans, Greyhound, Gray Line and the City of San Francisco. This report is the first effort to examine the full range of potential long-range transit services serving the terminal. It provides a general indication of the transit needs (bus and rail) for the transbay terminal in the next 20 years, as follows:

Transit Operators	Number of Stops	Number of Bus Storage Spaces	Square Feet of Supporting Facilities
AC Transit	40	160	3,700
MUNI	6		
SamTrans	3	20	
Golden Gate	40		
Greyhound	40		15,700
Gray Line Tours	12 (shares w/AC)	20	800
Gray Line (Sac Commute)	1		
Amtrak	3		1,200
Green Tortoise	1		
Silver Star	1		1,000
Falcon	1		
Caltrans Bike Shuttle	1 (shares w/AC)		
Amador/Mike Lee/ Betty's	1 (shares w/AC)		1,200
Common Areas (All)			15,000
Total	82	200	35,600

Basic Design Principals

Bus Access

Based on the origins and destinations of the routes of these transit carriers, the following principles are established for various transit carriers:

- At a minimum, AC Transit buses should have direct access to and from the Bay Bridge via an exclusive bus ramp, because these buses are destined to and from the Bay Bridge.

- MUNI buses should maintain their current access pattern to the terminal. The access pattern will require minor modifications for the Main/Beale site.

- SamTrans buses should have an option to continue to operate on Mission Street or access the terminal via similar routes to MUNI buses.

- Golden Gate transit bus access pattern will be modified only within the vicinity of the terminal. A more convenient access pattern should be developed, so that Golden Gate buses will no longer be required to access the terminal from the Second Street bus ramp.

- The other bus carriers should have direct and exclusive bus ramp connection to the Bay Bridge to the extent possible.

Pedestrian Access

Direct pedestrian connections between transit carriers should be facilitated to the extent possible without using the sidewalk space. This would reduce the pedestrian/vehicular conflicts. To the extent possible, there should be direct pedestrian connections between the terminal and potential land uses.

Auto

There should be no changes to the existing traffic circulation pattern in the South-of-Market area. Auto access and pick-up and drop-off activities should occur on the major arterial streets.

Taxi

Taxi pick-up and drop-off activities should occur on the major arterial streets.

Basic Design Standards

This section describes the basic design standards used in this study.

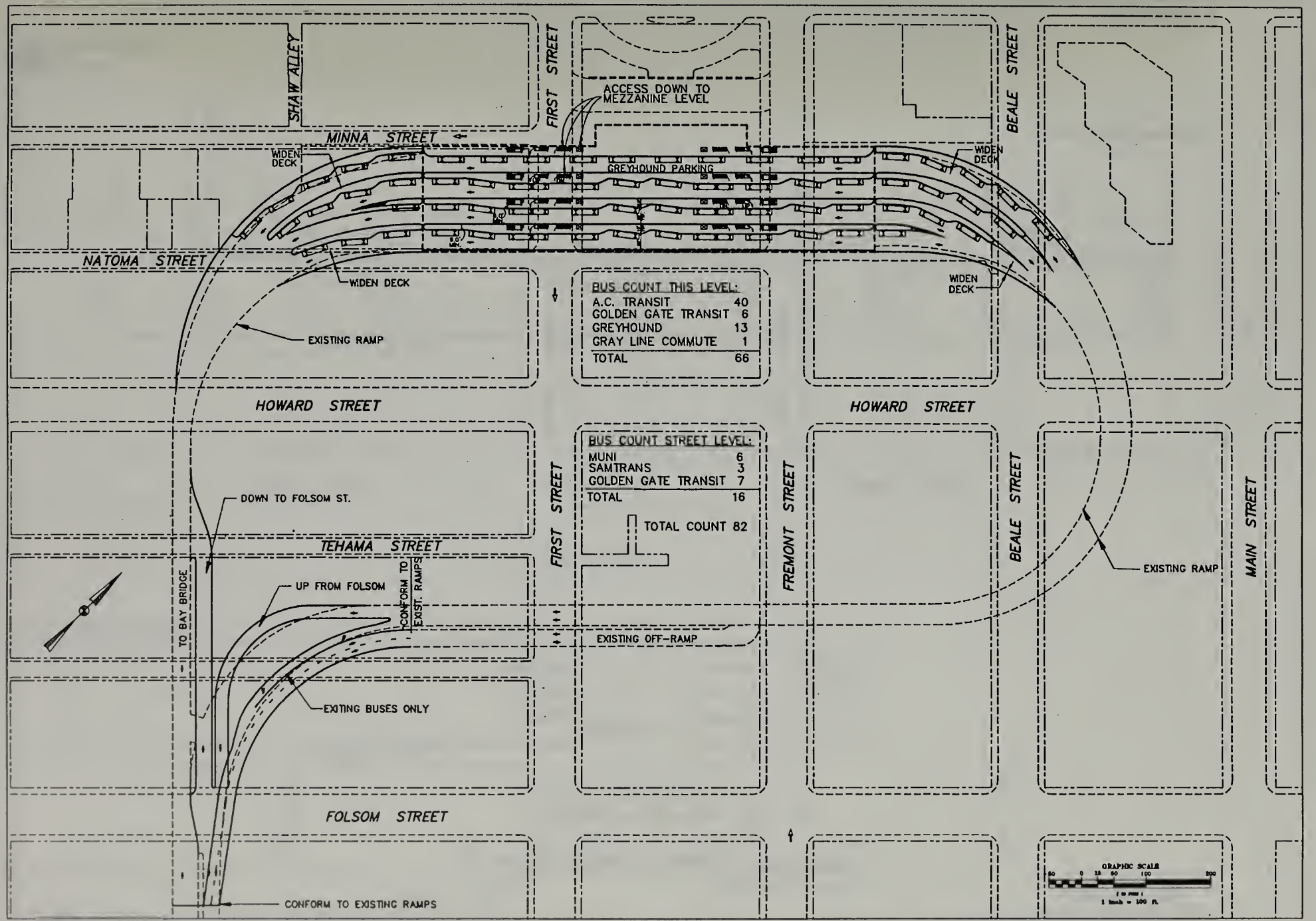
Bus Aisle and Bus Bays

- Bus Aisles: 25 feet minimum
- Bus Bays
  - Standard buses: 65 feet long
  - Articulated buses: 85 feet long
- Turning Radius: 30 feet minimum (inside)
- Bus Platform: 20 feet wide. Space for one 11 foot wide double, or 5'6" wide single escalator, one 9 foot wide stairway, and one 8 foot wide elevator. Locations are staggered along the platforms.

Commute Rail/High Speed Rail Platform

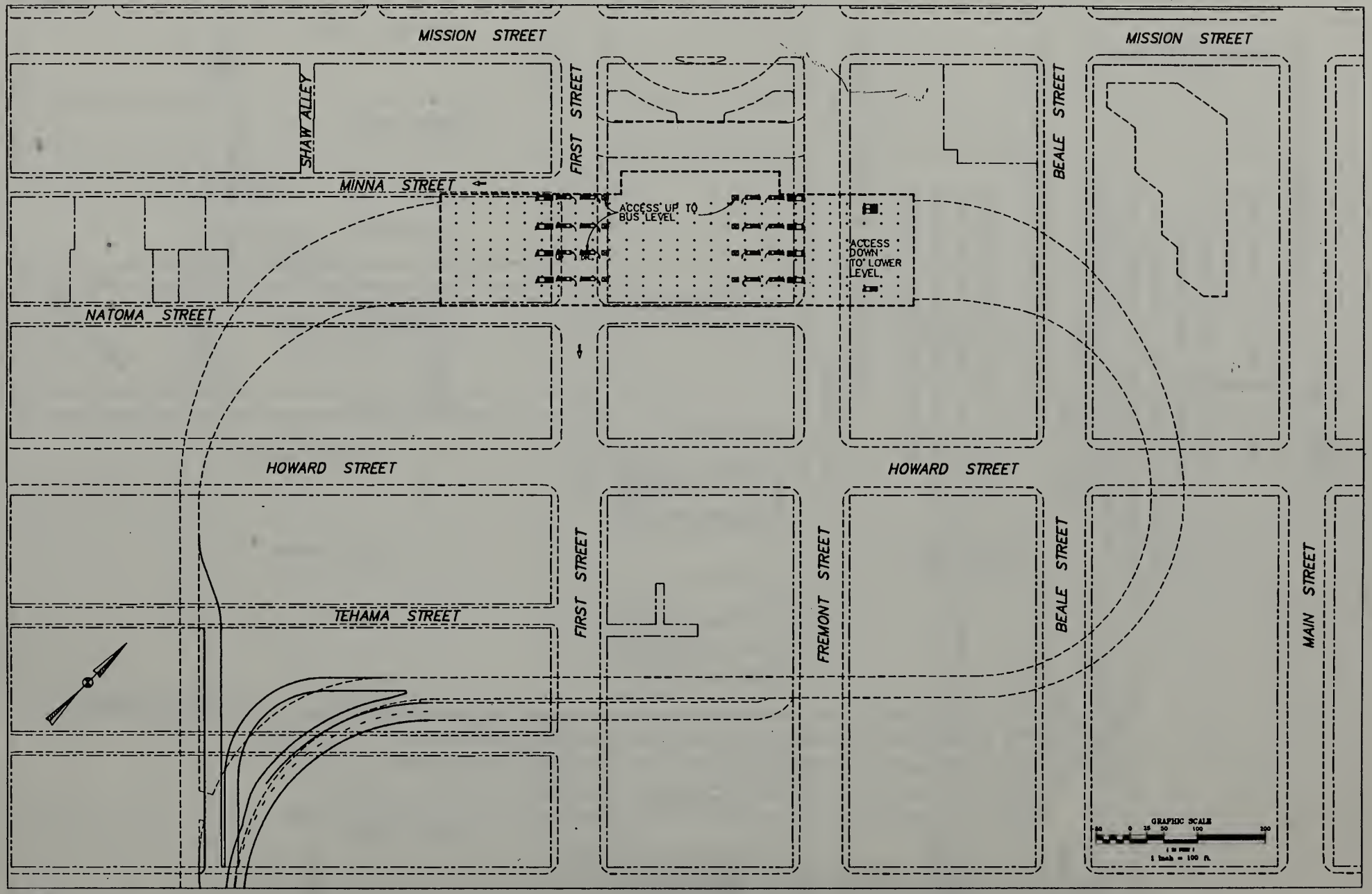
- Turning Radius: 12°30' (459 feet)
- Rail Platform: 20 feet wide. Space for one 11 foot wide double, or 5'6" wide single escalator, one 9 foot wide stairway, and one 8 foot wide elevator. Locations are staggered along the platforms.

Bus Ramp Grade - 8 percent maximum



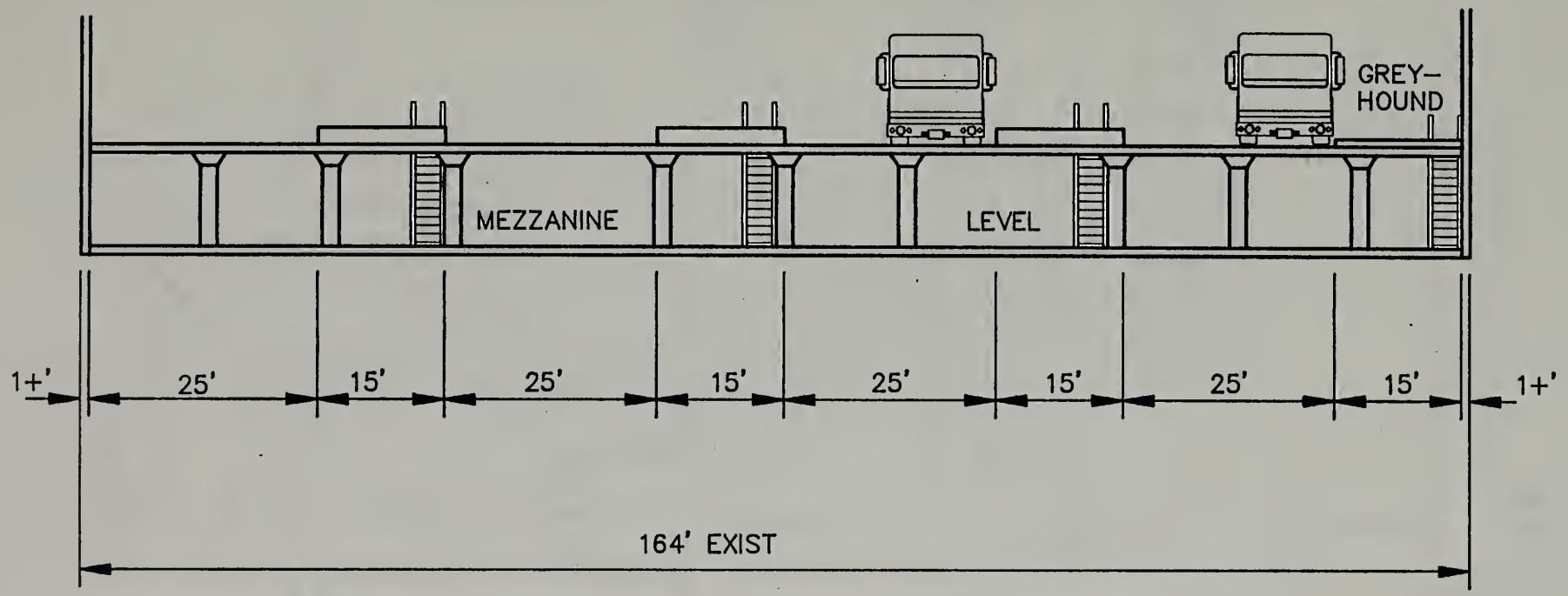
Korve Engineering

Alternative X
Modification to Existing Building,
Upper Level



Korve Engineering

Alternative X
Modification to Existing Building,
Mezzanine Level



SECTION A-A

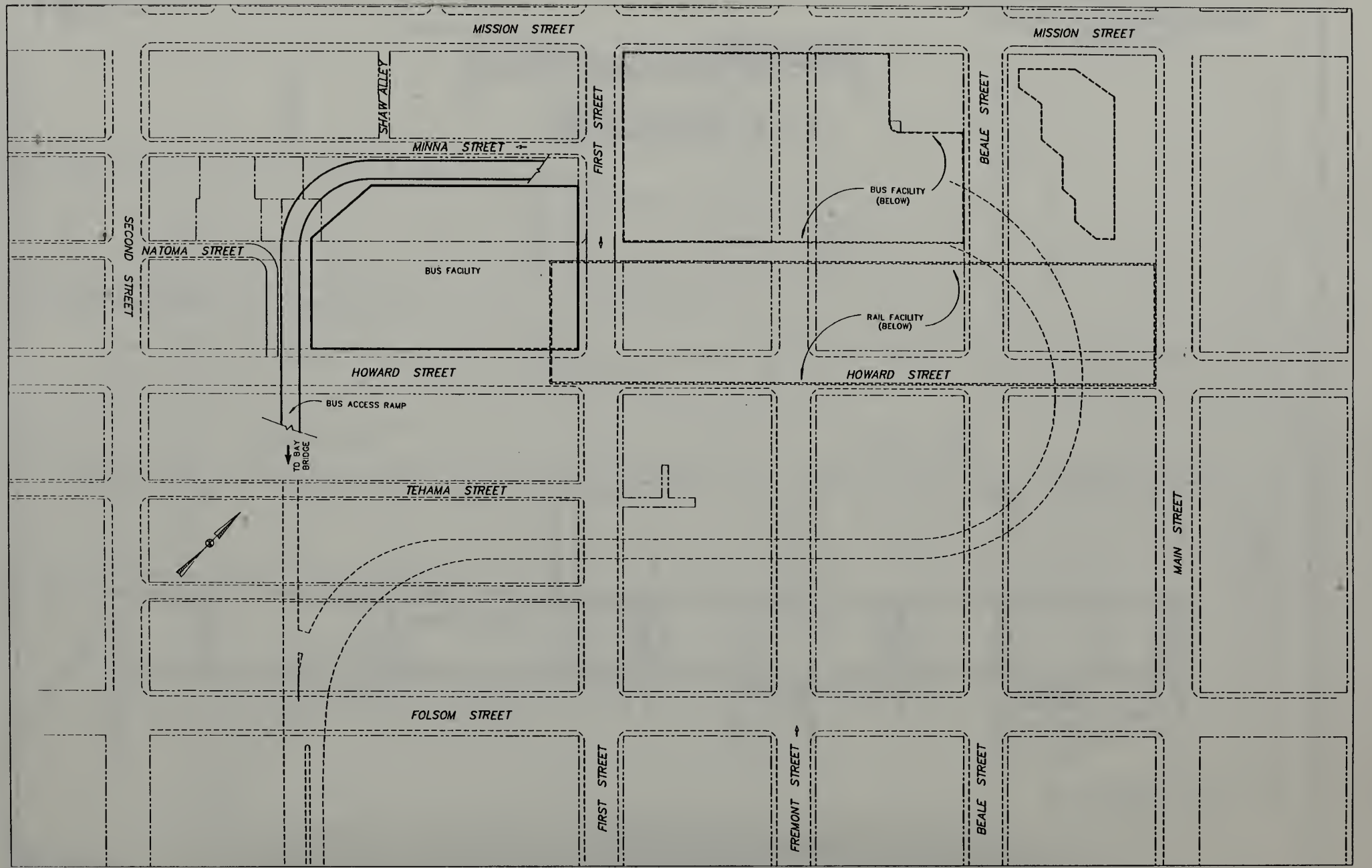
20 0 20 40

1" = 20' GRAPHIC SCALE

Korve Engineering

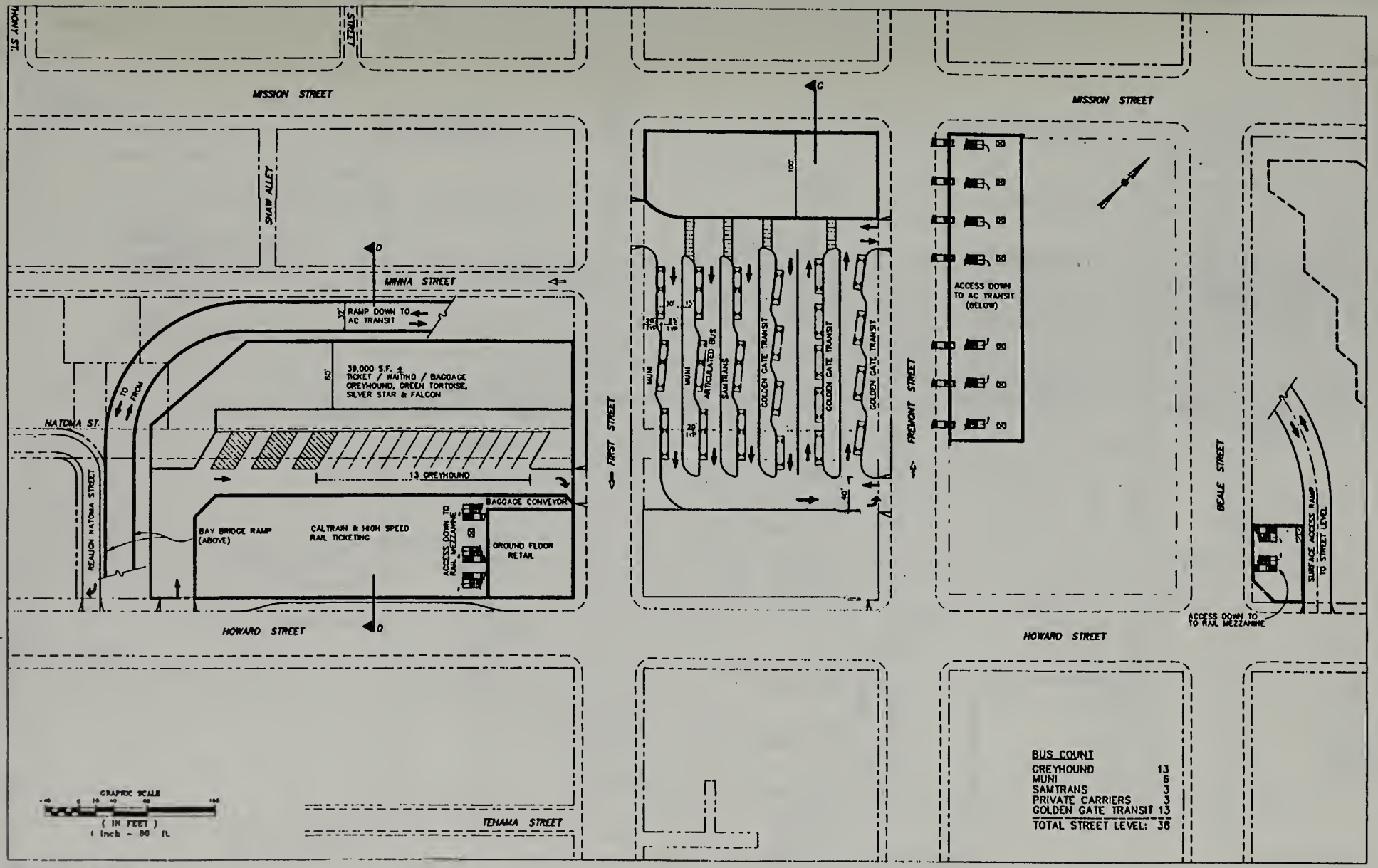
Alternative X
Modification to Existing Building,
Terminal Section

185225



Korve Engineering

ALTERNATIVE A-Existing Terminal Site, Site Plan

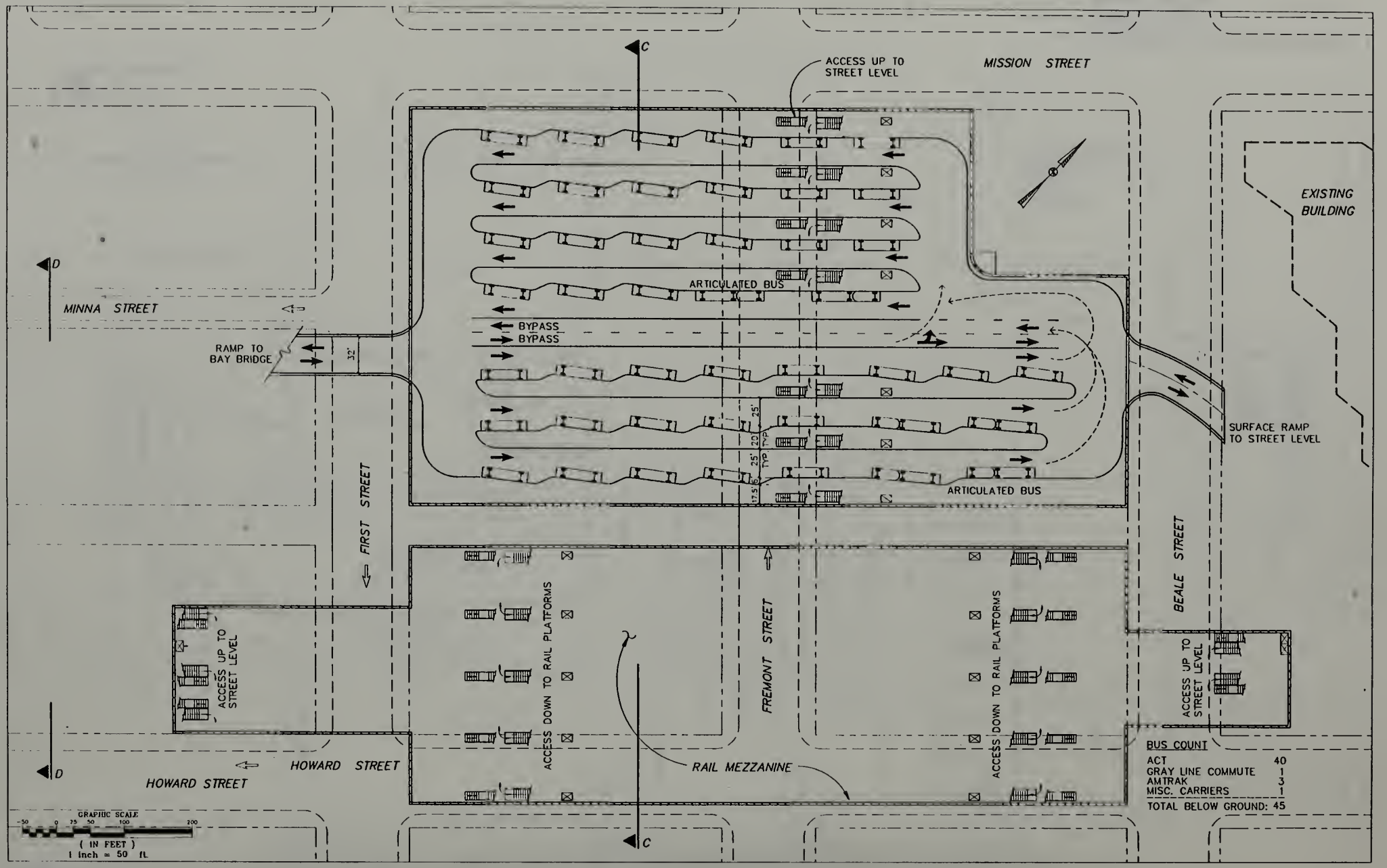


BUS COUNT

GREYHOUND	13
MUNI	6
SAMTRANS	3
PRIVATE CARRIERS	3
GOLDEN GATE TRANSIT	13
TOTAL STREET LEVEL:	38

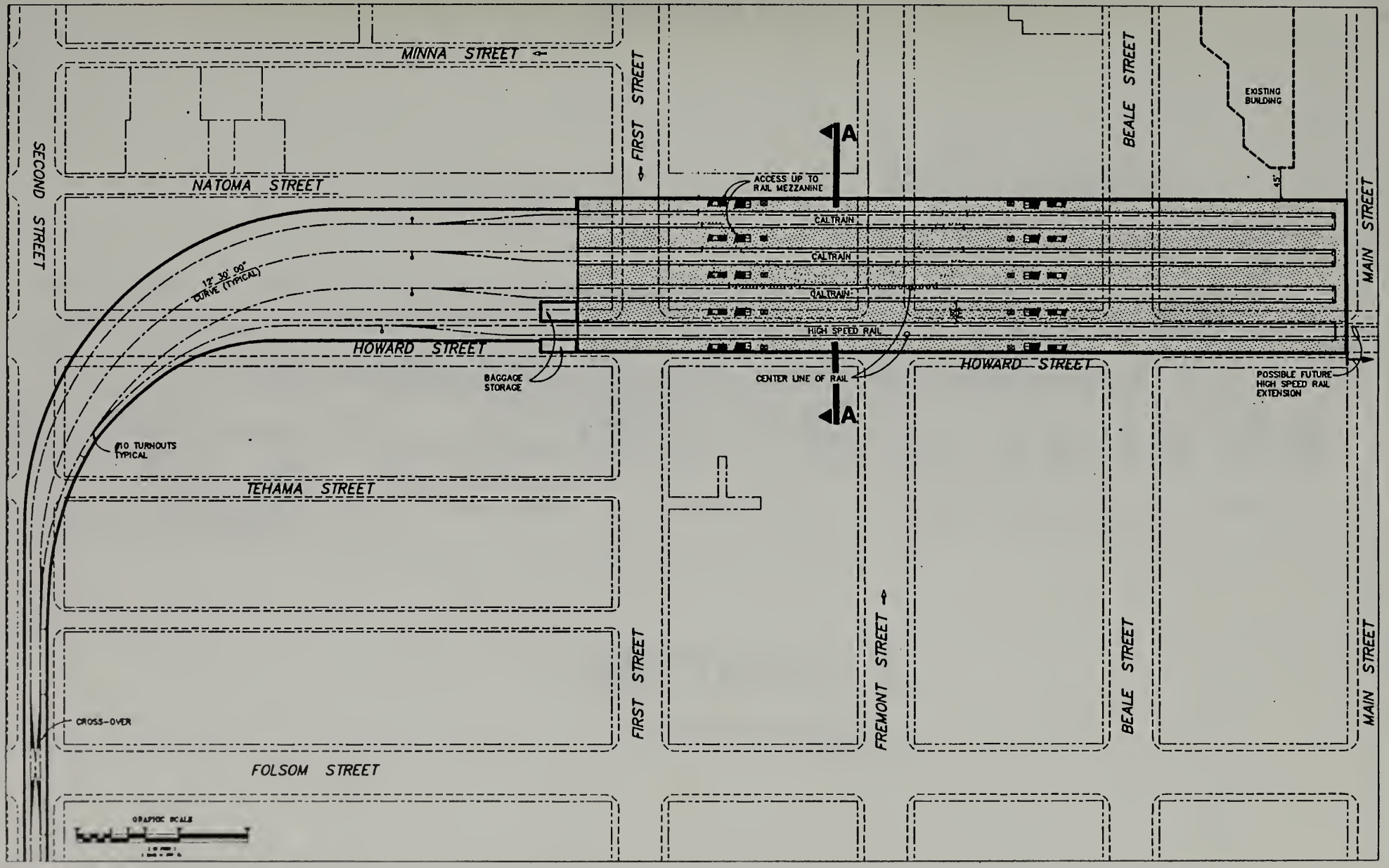
Korve Engineering

Alternative A-Existing Terminal Site
Transit Terminal
Street Level Plan



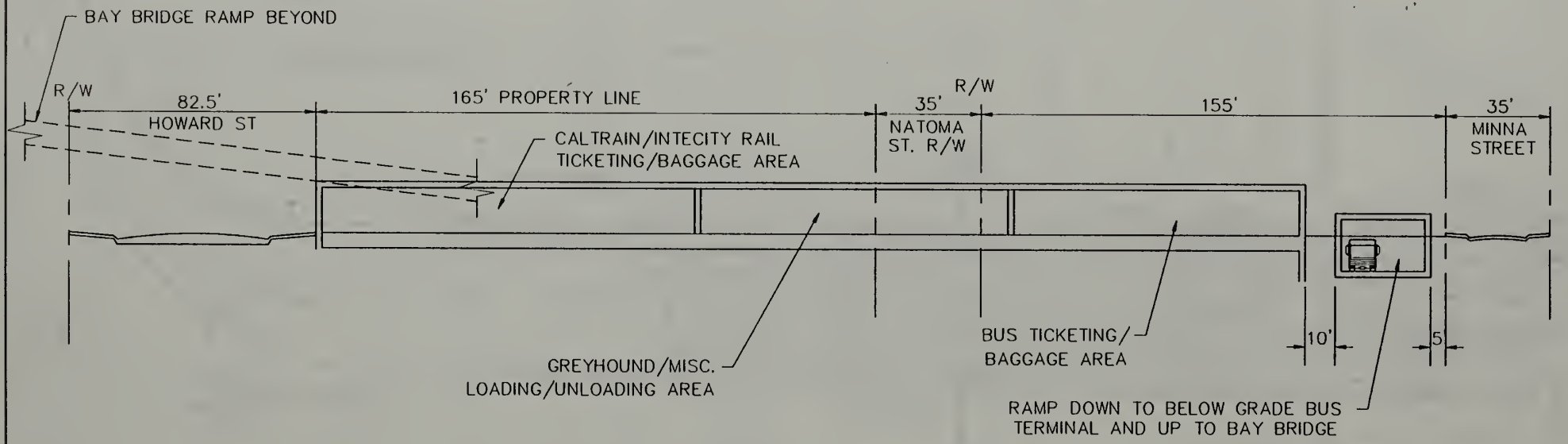
Korve Engineering

ALTERNATIVE A-Existing Terminal Site, Transit Terminal Below Ground Level Plan



Korve Engineering

Alternatives A & B
Underground Rail Platform Level

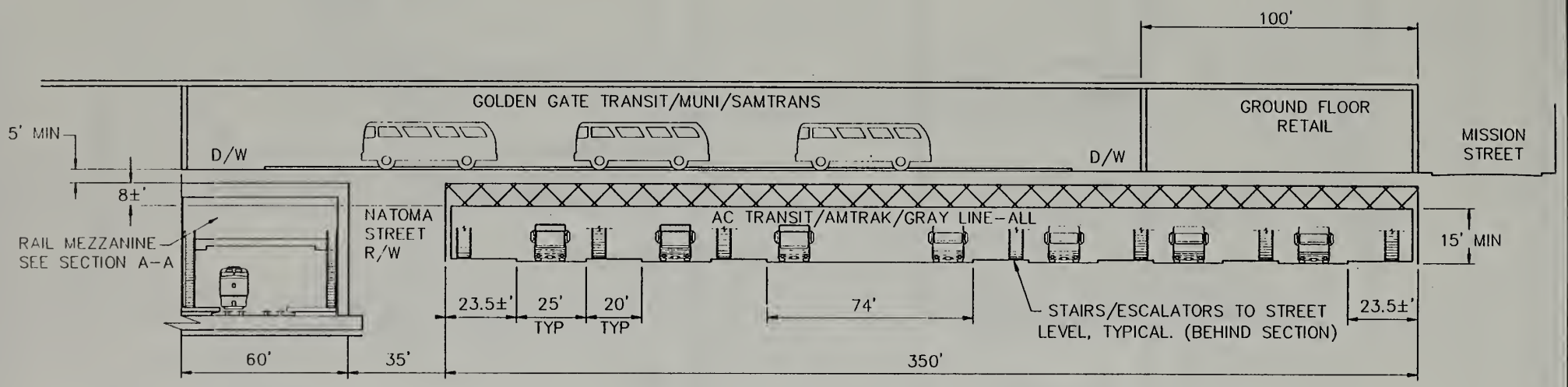


SECTION D-D

Korve Engineering

ALTERNATIVE A-Existing Terminal Site,
Transit Terminal Section D-D
West of First Street

TBSEC4



SECTION C-C

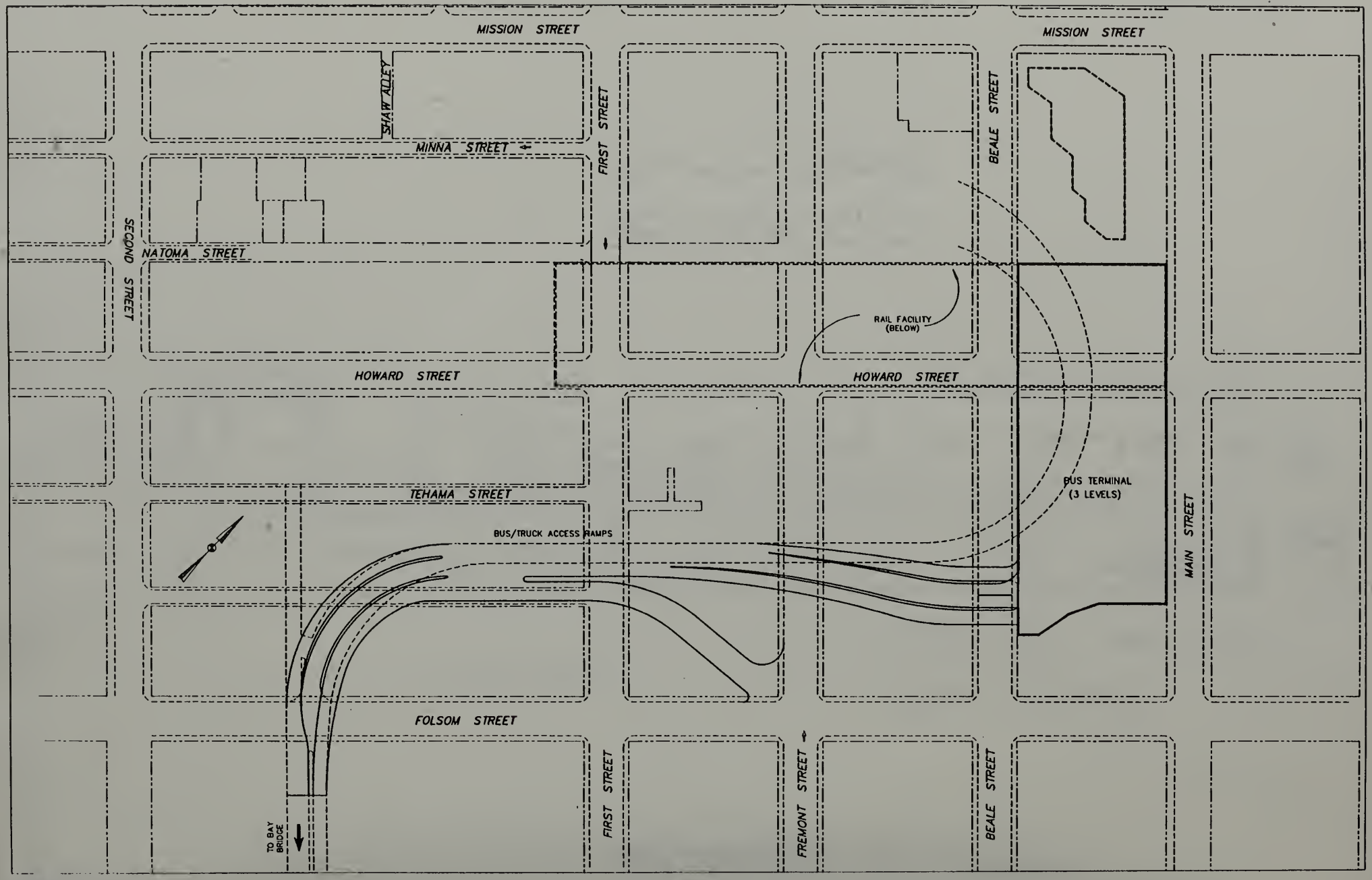
40 0 40 80

1" = 40' GRAPHIC SCALE

Korve Engineering

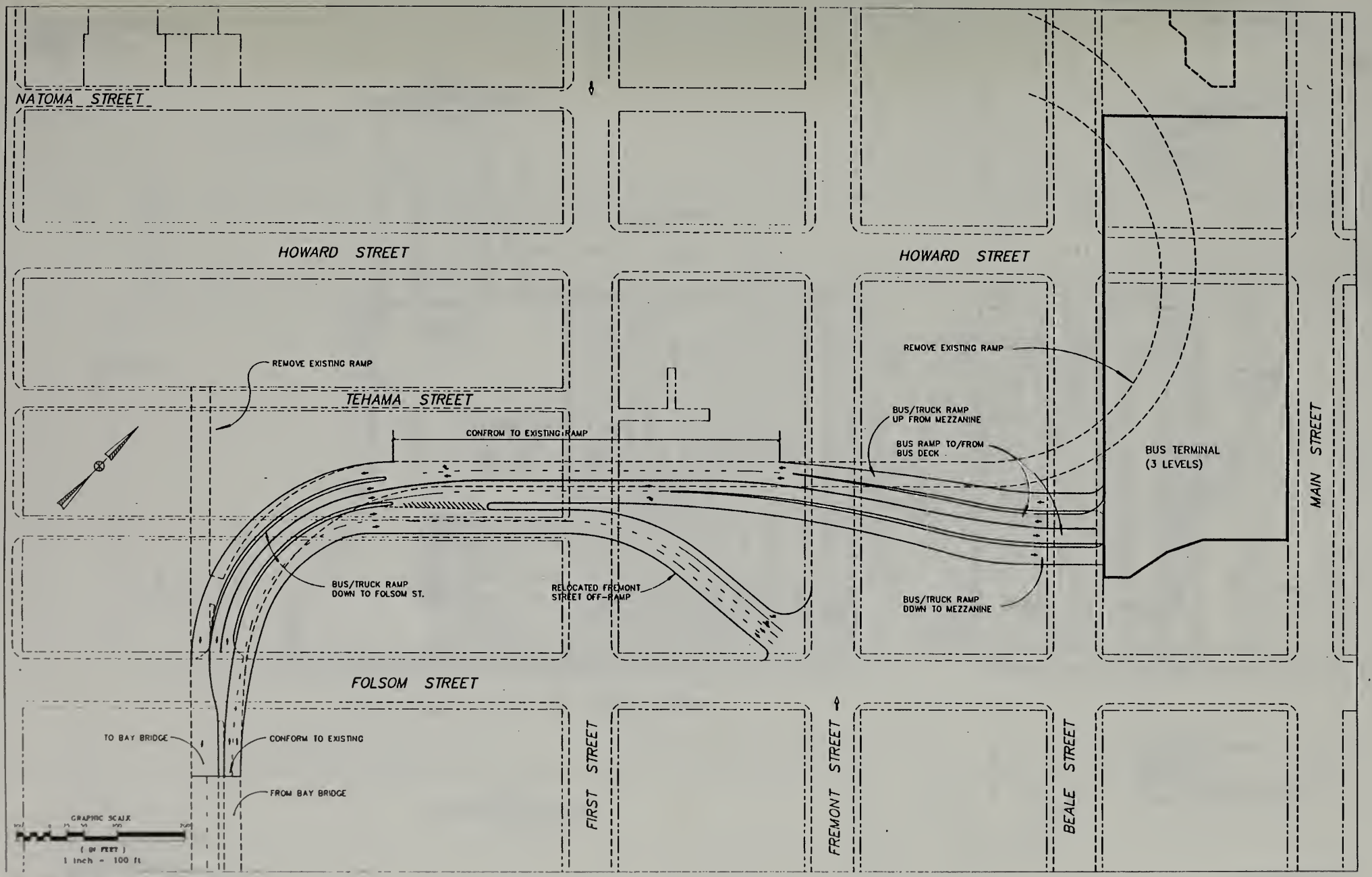
ALTERNATIVE A-Existing Terminal Site
Transit Terminal Section C-C
West of Fremont Street

16SEC3



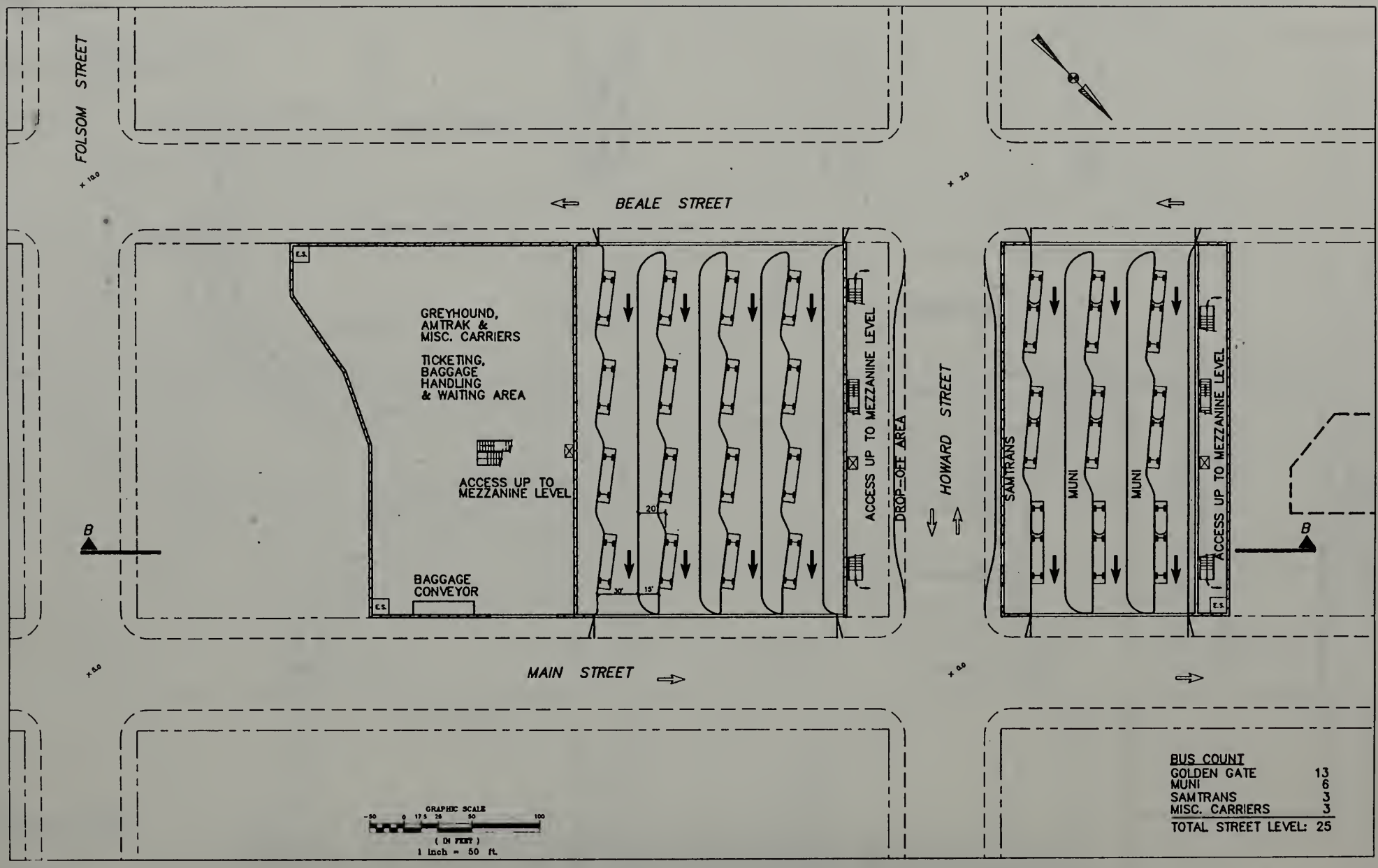
Korve Engineering

ALTERNATIVE B-Main/Beale Site
Site Plan



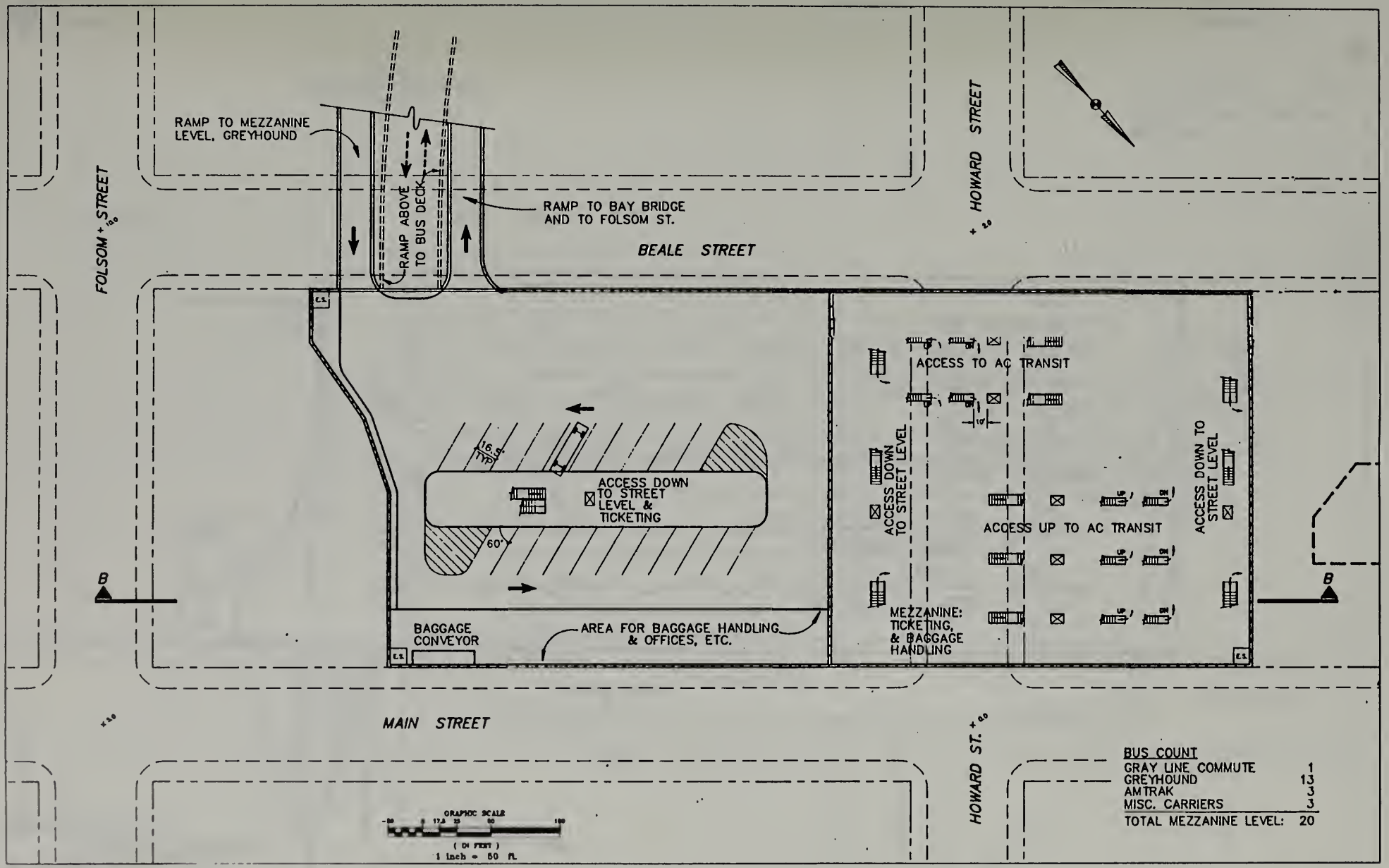
Korve Engineering

ALTERNATIVE B-Main/Beale Site
Ramp Modification Plan



Korve Engineering

Alternative B
New Transit Terminal,
Main/Beale Site,
Ground Level Plan

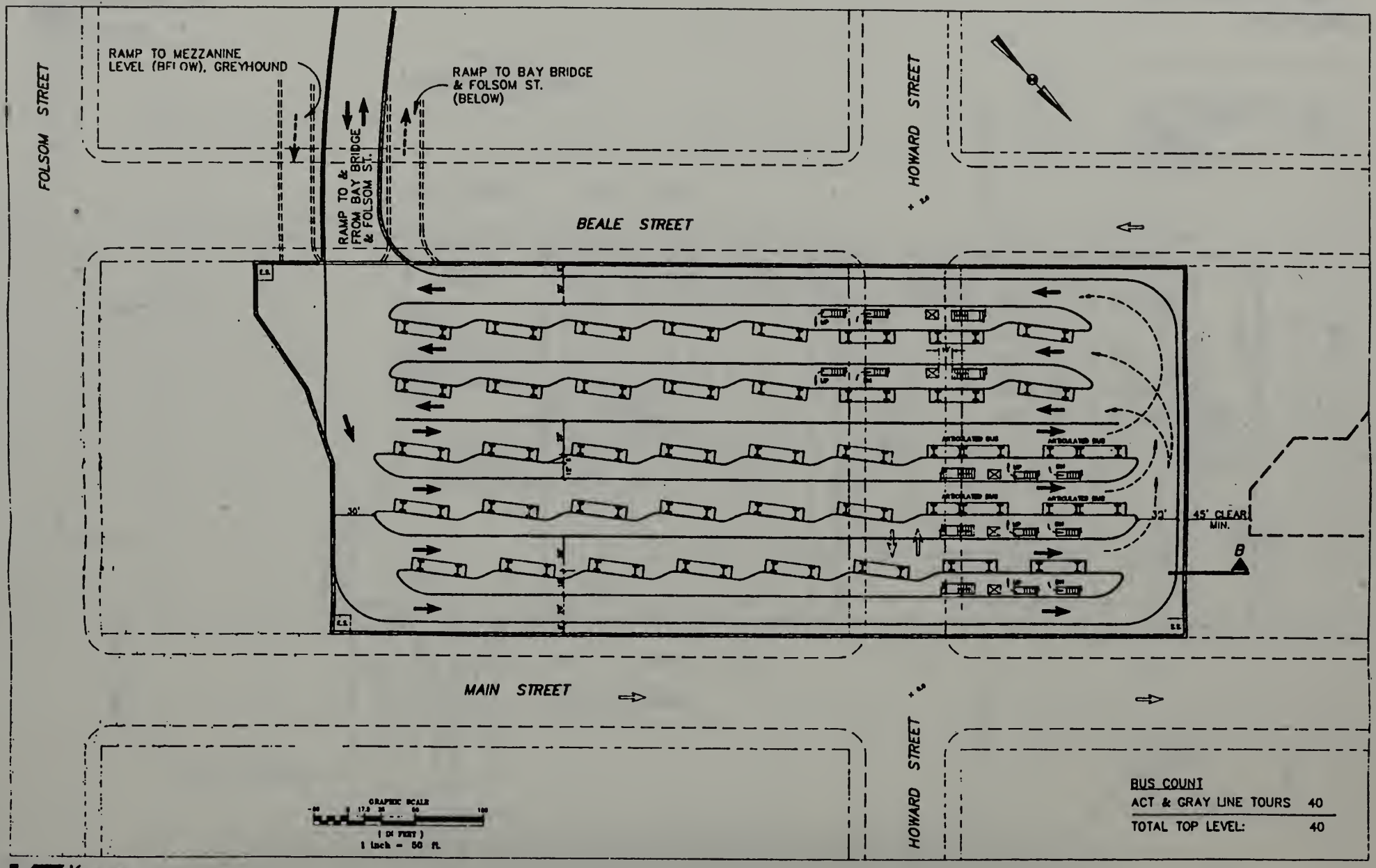


BUS COUNT

GRAY LINE COMMUTE	1
GREYHOUND	13
AMTRAK	3
MISC. CARRIERS	3
TOTAL MEZZANINE LEVEL:	20

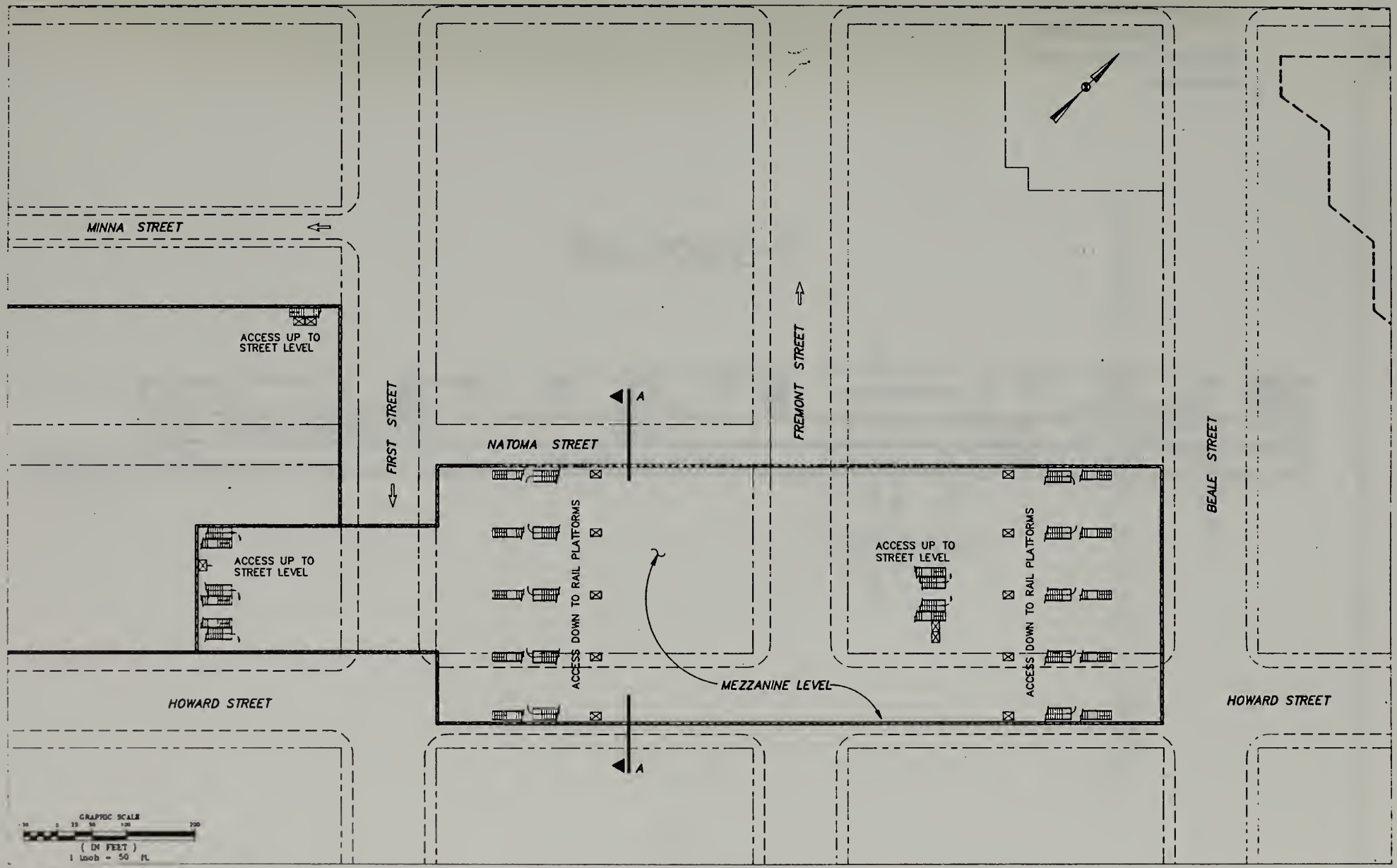
Korve Engineering

Alternative B
New Transit Terminal
Main/Beale Site,
Mezzanine Level Plan



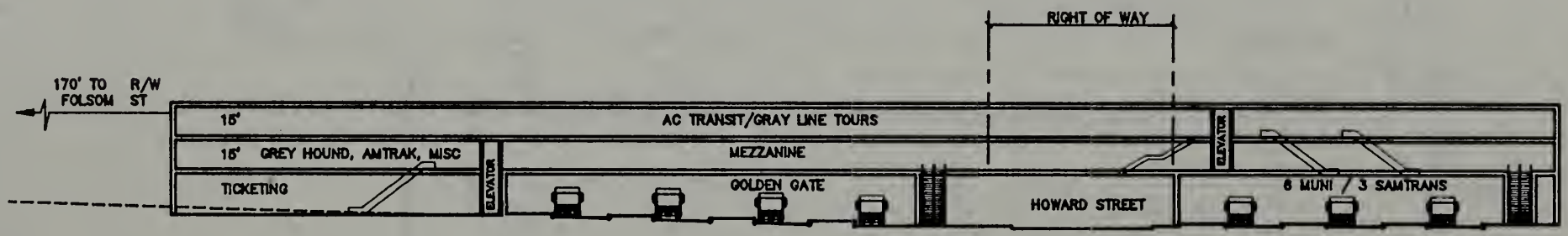
Korve Engineering

Alternative B
New Transit Terminal
Main/Beale Site
Upper Level Plan



Korve Engineering

Alternative B
New Transit Terminal,
Main/Beale Site, Underground
Rail Station, Mezzanine Level



SECTION B-B

Alternative B
New Transit Terminal,
Main/Beale site
Bus Terminal Section

Korve Engineering

TBSEC2

APPENDIX B

PRELIMINARY CONSTRUCTION COST ESTIMATES

Prepared by:

Turner Construction
Crosby Hemlich Architects
Korve Engineering

MODIFIED TRANSIT TERMINAL, ALTERNATIVE X - NO PODIUM

	Sq. Ft.	Unit Cost	Cost
TERMINAL CONSTRUCTION			
Basement	87,750	125	10,968,750
Ground Level	87,750	125	10,968,750
Mezzanine	87,750	125	10,970,000
Bus Level	115,000	125	14,375,000
East Extension	33,100	125	4,137,500
West Extension	33,100	125	4,137,500
BUILDING TOTAL			55,557,500
RAMP DEMOLITION AND CONSTRUCTION			
Inbound Ramps- Folsom Street	50,000	30	1,500,000
Inbound at Terminal	37,500	30	1,125,000
Outbound at Terminal	35,000	30	1,050,000
Decks at Terminal	86,000	100	8,600,000
Ramps to/from Folsom Street	21,600	80	1,728,000
Inbound Ramp-Folsom Street	19,000	100	1,900,000
Signing/Striping	Lump Sum		50,000
RAMP TOTAL			15,953,000
TOTAL DIRECT CONSTRUCTION COST			71,510,500
RAMP DEMOLITION, CONSTRUCTION CONTINGENCY & RELATED COSTS : + 50 %			
Owner's Contingency, Design, Construction Management, Permit Fees, Traffic Control & Mobilization			7,976,500
BUILDING CONTINGENCY & RELATED COSTS: + 25 %			
Owner's Contingency, Design, Planning, Permit Fees, Testing & Inspection			13,889,375
GRAND TOTAL			93,376,375

Notes to Altemative X:

We have not included any costs for historic preservation impacts.
We have not included costs for potential rail station which is not assumed to be developed as part of this project.
This scheme does not include a podium or any development above. It is assumed that any upgrade required to develop will be paid by the developer.
Based on today's construction cost with no escalation included.

Source: Turner Construction, Crosby Helmich Architects, and Korve Engineering

NEW TRANSIT TERMINAL, ALTERNATIVE A - NO PODIUM

DEMOLITION AND CLEAR SITE			
Demo Transbay Terminal	8,953,000	0.55	4,924,150
Demo@Howard & Fremont	700,000	0.45	315,000
Demo Howard-Fremont&First	1,008,000	0.45	453,600
Howard-west of First	2,425,500	0.45	1,091,475
DEMOLITION TOTAL			6,684,225
BUSES			
AC Transit Bus	197,609	85	16,796,765
Terminal Ticketing and Waiting Area	81,150	120	10,938,000
Surface Bus	94,843	85	4,742,150
Greyhound	95,394	75	7,154,550
Retail Mission	35,650	70	2,495,500
BUSES TOTAL			42,127,165
PUBLIC SPACE			
Lobby Dev/Retail	7,760	70	543,200
Podium Access/Retail	25,200	70	1,764,000
Street area	58,000	10	580,000
Sidewalk	40,458	20	809,120
PUBLIC SPACE TOTAL			3,696,320
BUILDING TOTAL			52,607,710
RAMP DEMOLITION AND CONSTRUCTION			
Inbound bus deck	100,000	30	3,000,000
Outbound Bus Deck	64,900	30	1,935,000
Ramp under 1st Street	34,000	87.65	2,930,000
Ramp under Beale Street	6,800	87.65	596,000
RAMP TOTAL			8,461,000
TOTAL DIRECT CONSTRUCTION COST			61,068,710
RAMP DEMOLITION, CONSTRUCTION CONTINGENCY AND RELATED COSTS: +50%			
Owner's Contingency, Design, Construction Management, Permit Fees, Traffic Control & Mobilizatiom			4,455,500
BUILDING CONTINGENCY AND RELATED COSTS: +25%			
Owner's Contingency, Design, Planning, Permit Fees, Testing & Inspection			13,151,928
GRAND TOTAL			78,676,146

Notes to Alternative A:

We have not included any costs for installation of basement ventilation system for bus exhaust needed for Alternative A.
We have not included any costs for historic preservation impacts.
We have not included costs for potential rail station which is not assumed to be developed as part of this project.
This scheme does not include a podium or any development above. It is assumed that any upgrade required to develop will be paid by the developer.
Retail spaces are core & shell with Tenant Improvements to be paid by tenant.
Major utility relocation are not included since scope is not known.
Based on today's construction cost with no escalation included.

Source: Turner Construction, Crosby Helmich Architects, and Korve Engineering

NEW TRANSIT TERMINAL, ALTERNATIVE B - NO PODIUM

	Sq. Ft.	Unit Cost	Cost
DEMOLITION AND CLEAR SITE			
Demo Transbay Terminal	8,953,000	0.55	4,924,150
Demo@Howard & Fremont	700,000	0.45	315,000
Demo Howard-Fremont&First	1,008,000	0.45	450,600
Howard-west of First	2,425,500	0.45	1,091,475
DEMOLITION TOTAL			6,784,225
BUSES			
Bus Plaza	38,000	45	1,710,000
Bus Area	356,090	85	30,267,650
Terminal Space	130,000	120	16,080,000
BUSES TOTAL			48,057,650
Street Area Public Space	58,000	45	580,000
BUILDING TOTAL			55,421,875
RAMP CONSTRUCTION AND DEMOLITION			
_Inbound bus deck	130,000	30	3,900,000
Fremont Street Off-Ramp	15,000	30	450,000
Outbound Bus Deck Demolition	72,000	30	2,160,000
All New Ramps	144,000	100	14,400,000
Fremont/Folsom Inter.	Lump Sum		200,000
Signing/Striping	Lump Sum		450,000
RAMP TOTAL			21.260,000
TOTAL DIRECT CONSTRUCTION COST			76,681,875
RAMP DEMOLITION, CONSTRUCTION CONTINGENCY AND RELATED COSTS: +50 %			
Owner's Contingency, Design, Construction Management, Permit Fees, Traffic Control & Mobilization			10,630,000
BUILDING CONTINGENCY AND RELATED COSTS: + 25 %			
Owner's Contingency, Design, Planning, Permit Fees, Testing & Inspection			13,855,468
GRAND TOTAL			**101,167,343**

Notes to Alternative B:

We have not included any costs for historic preservation impacts.
We have not included costs for potential rail station which is not assumed to be developed as part of this project.
This scheme does not include a podium or any development above. It is assumed that any upgrade required to develop will be paid by the developer.
Retail spaces are core & shell with Tenant Improvements to be paid by tenant.
Major utility relocation are not included since scope is not known.
No costs are included for interim bus operations which would have to be relocated during construction.
Based on today's construction cost with no escalation included.

Source: Turner Construction, Crosby Helmich Architects, and Korve Engineering